

QUIET YOUR 100!

PORTABLE 100

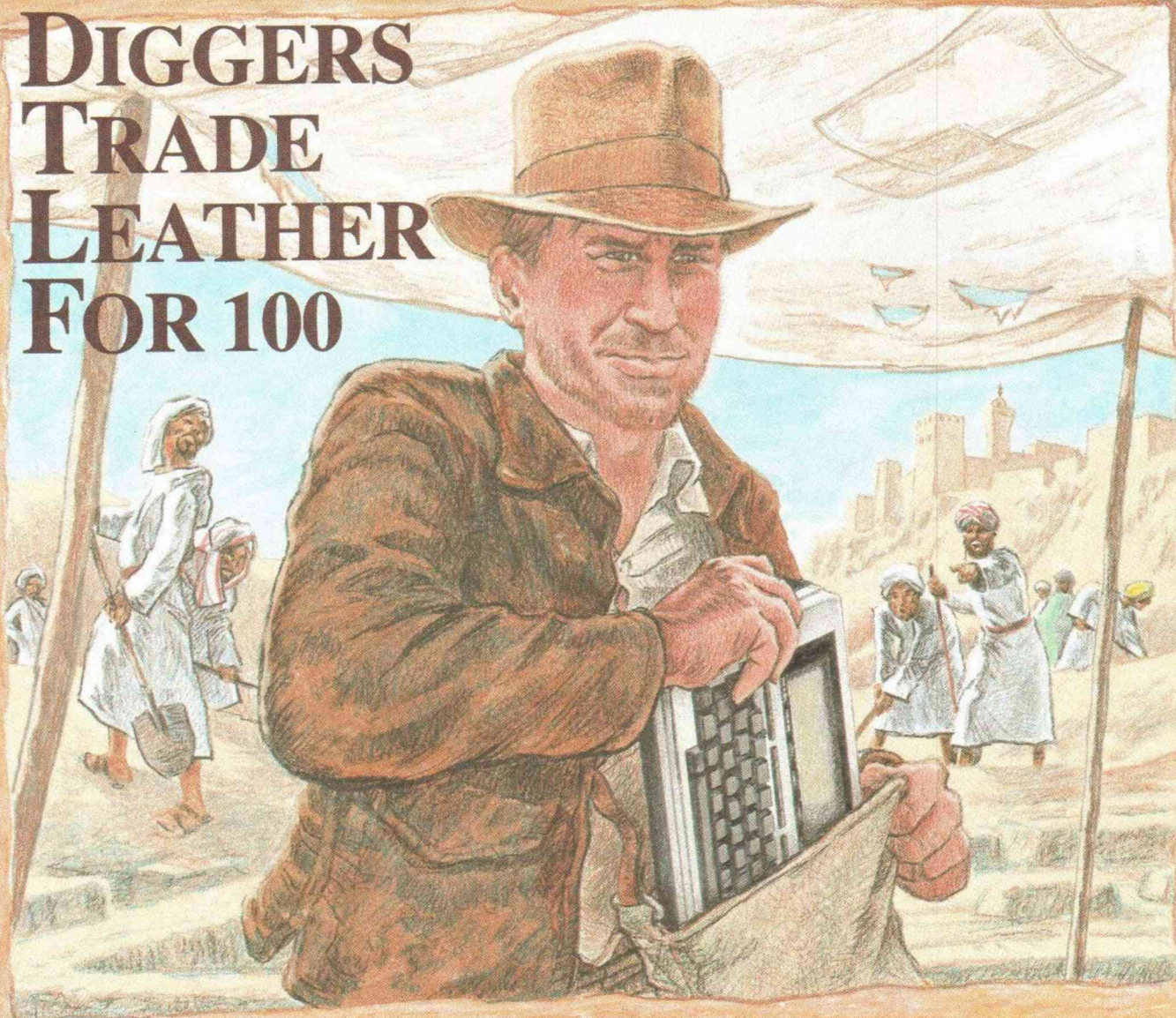
OCTOBER

1984

\$2.95

DD04*93430MIUR94*DELO 8410
E MIURA
94 DEL MAR AVE
CAYUCOS
CA 93430

DIGGERS TRADE LEATHER FOR 100



POWER HOUSE DB REVIEWED

Introducing TTXpress. The full-function computer printer that fits in your briefcase.



Now you can take a printer everywhere you go...on the road, to meetings, aboard planes or in your car; this quiet, 3-pound printer turns your portable or handheld computer into a complete system.

Versatile TTXpress prints at 40 characters per second...wonderfully clear text, charts and graphics. It even prints spreadsheets up to 160 characters across on 8 1/2-inch paper.

The industry standard interface makes the TTXpress work with all popular computers. It is available now through your local authorized dealer. Sales and service nationally.

"The world's smallest full-function printer."

\$229 Suggested retail price.

TTXpress™

TTX and TTXpress are trademarks of TTX Inc., 3420 East Third Avenue, Foster City, CA 94404 415/341-1300

When DATAPORT/CS introduced the first micro-size letter-quality computer printer, it was such a big hit even we wondered what we'd do for an encore.

Now we know.

And we are happy to present the enhanced version of this revolutionary letter-quality computer printer that we used to write the product announcement you're reading. The DataPort LQ retains the title of the lowest priced letter-quality printer in the world!

You'll be happy to know the price remains a solid \$295.00.

Like the original printer, the DataPort LQ is still 8-1/2 by 11 inches in size and only two inches thick. As you'd expect, the enhanced model of the LQ is still made with industrial quality components. We give you a one-year unlimited warranty on every component inside the printer. The computer interface is Standard Parallel and Centronics Compatible. Maximum column width is 80 characters per line and printing speed is 15 characters-per-second. The printer uses standard 8-1/2 inch plain paper by any length.

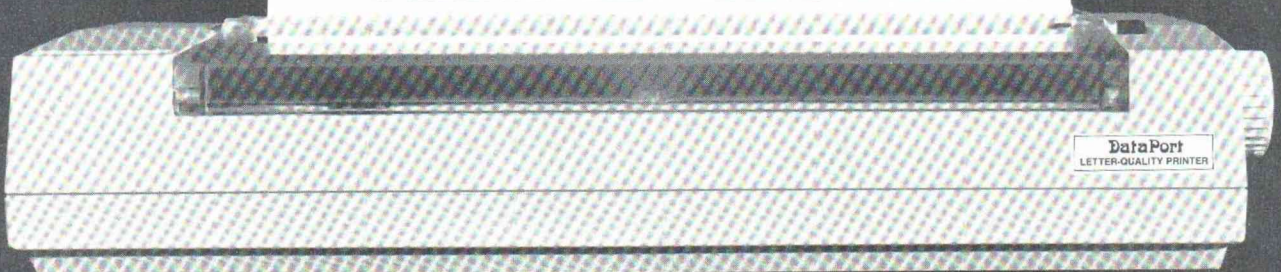
The DataPort LQ letter-quality printer is built with the same degree of performance and reliability found in much more expensive models. Printing is bidirectional, and the ASCII 96-character set is well suited for most personal or business needs. It can underline or BOLDFACE with ease --- and "understands" all other control codes sent from your computer. All this for just \$295.00.

There's even more to our encore. Now you can write in a taxi, correct it in a coffee shop, and print it on a plane. Here's the rest of the DATAPORT/CS collection for your consideration.

The DataPort DM is a full featured dot matrix battery-powered or 110 volt AC printer that can printout both bidirectionally and unidirectionally, on ordinary paper, and still fit into your briefcase, leaving room for your notebook-size computer. The DataPort DM can print out a full 80 column page of text, almost without a sound. The high quality printer head not only prints on ordinary paper with its ribbon cassette but it can print on thermal paper as well. The DataPort DM is notebook-size and zips through your text at 30 characters per second. The DataPort DM supports a Standard Parallel Centronics interface and is available for \$225.00.

The DataPort MG is a 40 column micro-size dot matrix printer with selectable column widths, upper and lower case characters and true bit mapping graphics capability. It can be battery powered and is supplied with a 110 volt AC adapter. The DataPort MG is truly pocket size---approximately 4 inches square---and of course, the interface is Standard Centronics Parallel. The DataPort MG uses plain paper and a standard ribbon and is offered at \$155.00.

DATAPORT/CS is the wholly-owned subsidiary of Central Stationers, Inc., founded thirty-four years ago in the San Francisco bay area. We invite you to call 415/ 233-2530 for ordering information, or write: DATAPORT/CS, 169 South First Street, Richmond, CA 94804 for a data packet on the products mentioned here. Shipping and insurance on all orders is an additional \$10.00 to any city in the United States.



PORTABLE 100

OCTOBER 1984
VOLUME 2 NO. 10

DEPARTMENTS

- 5 PREVIEW
- 6 MAIL.100
- 10 THE WIRE
- 14 NEW PRODUCTS
- 29 FULL DUPLEX
By Terry Kepner
- 74 BOOKS

REVIEWS

- 53 DISK + ROM
Portable Computer Support Group
- 54 DATA 1
Microbyte
- 55 TRAVELING SALES MANAGER
Traveling Software
- 57 TRANSDOC
Software-Plus Inc.
- 59 TRAVELING PROJECT
MANAGER
Software-Plus Inc.

COLUMNS

- 16 BUSCH LEAGUE
*Create and Save
Your Favorite Screens
With Screen Designer*
By David Busch
- 22 PORTABLE COMMANDER
*If You Enjoy Your Job
You Never Work
A Day in Your Life*
By Jake Commander
- 25 TELECOMPUTING
*Delphi System
Falls Short of
Bettering Competitors*
By Bill Loudon
- 33 BOTTOM LINE
*Who Really Needs
A 16-Bit Computer
To Take on the Road*
By Bill Walters
- 80 END USER
*Survival Tips
When Entering the
Computer Marketplace*
By Peter M. Stanwyck



Illustration by Margorie Strauss

page 36

FEATURES

36 T-BASE A POWERFUL RELATIONAL DB By John P. Mello Jr.

Traveling Software's most powerful offering to date blends sophistication with ease of use.

43 ARCHAEOLOGISTS TRADE FEDORA AND LEATHER FOR 100 By Daniela Buia Quinn

The romantic days of searching for an ancient city with a shovel and bullwhip are gone. Now the searching's done with a shovel and microcomputer.

ARTICLE

34 RUBBER BAND PLAYS SILENTLY ON MODEL 100 By T. Allan Trick

The clickity-clack of computer keys has often been cited as annoying others. Armed with something as simple as rubberbands, you can make your 100 more accessible in polite society.



Cover Illustration by Jim Sollers

page 42



Our Batteries Take You Anywhere

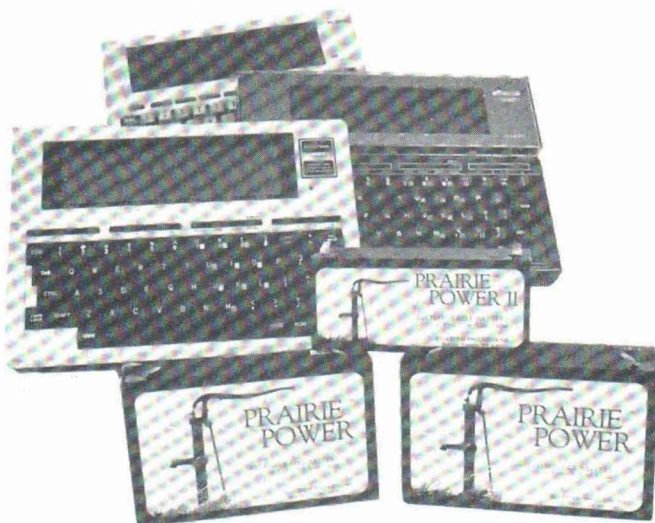
Whether you're writing your novel in the hills of Texas, your memoirs while sailing to Antiqua or just plain tired of spending time under your desk looking for outlets, PRAIRIE POWER batteries make "Briefcase Computing" a reality.

There's nothing complicated or expensive. Just plug one of our small units into the side of your Model 100, Olivetti M10 or NEC 8201A and forget about electricity. Gain dramatic savings over cost and computing time of AA's.

- PRAIRIE POWER is rechargeable
- Electrolyte immobilized technology
- Leak-proof and totally carefree
- 5' cable included
- Fits into standard cases
- Universal charger available
- For any 6-Volt applications such as radios, recorders, etc.
- Choose weight and battery size appropriate to your needs
- 24-hour ordering
- No memory like Nicads
- Not gelled-cells

SPECIFICATIONS

Size	Rating	Weight	Dimensions
8 amp. hr.	160 hrs. (32K)	3.6 lbs.	6x3.75x2
5.5 amp. hr.	100 hrs. "	2.7 lbs.	6x3.7x1.3
2.6 amp. hr.	54 hrs. "	1.4 lbs.	6x2.3x1.3



Left to Right: Prairie Power 5.5, 2.6, 8.
Front to Back: Tandy Model 100, Olivetti M10, NEC 8201A.

Bluestem Productions, Box 334, Wayzata, MN 55391, 612-927-2870 (24 hrs.)

Please send me:

___ 8 Amp. Hr. (\$34.95) ___ 5.5 Amp. Hr. (\$32.95) ___ 2.6 Amp. Hr. (\$29.95)

___ Universal Charger (\$11.95)

TERMS: Check, Money Order, Visa/MC, U.S. Funds only

Add \$4 to total for freight.

Name _____

Phone _____ Address _____

City _____ St _____ Zip _____

___ VISA ___ MC # _____ Exp. Date _____

Signature _____

SUBSCRIBE

1-800-225-5800

Enter your subscription
TODAY... 12 Issues of
PORTABLE 100

for only \$24.97
(\$10.93 off Newstand Price)

CALL US!
IT'S FAST & EASY!!
(or write)

PORTABLE 100 MAGAZINE

P.O. BOX 250, 15 ELM ST. CAMDEN, MAINE 04843



The Portable Accountant

Accounting System for the Model 100

- Allows More Time for Professional Services
- Improve Report Turnaround
- Speed Client Writups
- Reduce Errors

The PORTABLE ACCOUNTANT provides a fully integrated accounting system for any small business featuring:

Cash Disbursements Journals
Cash Receipts Journals
General Journals
Detailed General Ledger

Trial Balance
Automated Backup
Automated Balance Forward

Mail to:

The Portable Accountant
FACS, Inc.

Box 2132, White Flint Mall, Kensington, Maryland 20895



☐ Enclosed is my check for \$99.95.*

☐ Please charge \$99.95* to my

My Model 100 is a:

☐ 8K ☐ 24K ☐ 32K System



Account # _____

Signature _____

Exp. Date _____

Ship to:

Name _____

Street _____

City/State/Zip _____

PORTABLE
100 The magazine for
Model 100 users

Editor

John P. Mello Jr.

Assistant to the Editor

Nancy L. Laite

Contributing Editors

Jake Commander, David Busch
Terry Kepner, Bill Loudon
Bill Walters, Peter Stanwyck

Art Director

Paige Garland Parker

Advertising Production

Peter D. Koons

Production Consultant

Marjorie Strauss

Publisher

James S. Povec

Associate Publisher

Carl Cramer

Advertising Director

Peter K.J. Montross
(207) 236-4365
P.O. Box 250, 15 Elm Street
Camden, Maine 04843

Business Manager

James W. McBrien, Jr.

Office Manager

Nancy A. Wight

©Computer Communications, Inc., 1984. All rights reserved. Contents of this magazine may not be reproduced in whole or in part unless expressly authorized in writing by the Publisher. TRS-80 and Model 100 are trademarks of the Radio Shack Division of Tandy Corporation.

This magazine is published by Computer Communications, Inc. who is solely responsible for its contents.

The Publisher assumes no responsibility for the return of unsolicited manuscripts, queries or artwork. Materials submitted to Portable 100 should be accompanied by a stamped, self-addressed envelope. Editorial offices located at 15 Elm St., Camden, ME 04843.

U.S.A. Newsstand distribution by Curtis Circulation Company.

CIS ID: 76703,372

PREVIEW

JOHN P. MELLO JR.



FAREWELL TO A SISTER CROSSING THE BAR

*Sunset and evening star,
And one clear call for me!
And may there be no moaning of the bar,
When I put out to sea,*
—Tennyson, Crossing the Bar

Few things sadden an editor more than the passing of a magazine. This is doubly so when the magazine is as close a relative as *Color Computer* was to *Portable 100*.

Both magazines were born under the same roof at Computer Publishing Company before *Portable 100* became the mainstay of Computer Communications Inc. and *Color Computer* was sold to Ziff-Davis.

Kerry Leichtman, editor-in-chief of *Color Computer* and former editor of *Portable 100*, cut his teeth in computing, as did I, at *80 Micro*, a TRS-80 magazine formerly published by Wayne Green Inc. and currently published by CW Communications—Peterborough.

At the time, I was returning to "the world of work" after a stint of "freelancing" (a euphemism for unemployment), and Kerry was moving from a low-paying radio job to the high-tech arena. As writers, we had an interest in computers unmatched by our income.

Our exposure to computers at work, where a shortage of micros brought out the carnivore even among staff vegetarians, was never enough. We had to have one at home.

At the "shop," most editors sneered at the *Color Computer*. It had cassette storage, an awful keyboard, and a terrible display for word-processing. But almost every Friday, we'd maneuver to see who'd have the glorious good for-

tune to have custody of a *Color Computer* for the weekend. Most of the time, Kerry won those custody fights.

A first computer's like first love, there's an affinity there that's impossible to shake. Ask any Model I owner. Ask Kerry.

When *Color Computer* was at its height and neither one of us had to scramble for computers any more, Kerry had an ultra high-performance Model 2000 and sleek Model 4P in his office. But many times I'd visit him there and he'd be clicking away at a *Color Computer*.

When Kerry had the opportunity to start a magazine, he chose one aimed at the *Color Computer* market. The numbers were there to support his idea, but so was something else — heart.

Kerry shared his affinity for the *Color Computer* with the kind of magazine he gave *Color Computer* owners. *Color Computer* was one of the most attractive computer magazines published by anyone; its lineup of authors outstanding. If a *Color Computer* Hall of Fame is ever established, the first three

inductees would probably be *Color Computer* mainstays Bill Barden, Jake Commander, and Dennis Kitsz.

Color Computer owners recognized a quality product when they saw it, and the magazine's subscription base and revenues swelled. But soon, too soon perhaps, the venture reflected the roller-coaster ride the computer industry in general seems to be on. While the magazine continued to attract subscribers, its advertising base began to wither.

The heart was there, but the numbers weren't. It's said the good die young. That certainly was the case with *Color Computer*.

Just another casualty of the "shake-out." An interesting term, shakeout. It conveniently sidesteps sticky subjects like human misfortune and conjurs the image of a doleful shaggy dog ridding itself of some pesky fleas.

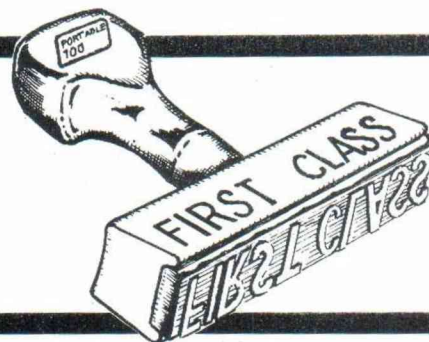
Tennyson wrote:

*Twilight and evening bell,
And after that the dark!
And may there be no sadness of farewell,
When I embark;*

If there are more *Color Computers* in store for the magazine industry, let's hope the only casualties are the magazines themselves and not the heart that goes into them. Only then can there be no sadness in farewells like this one. ◀



MAIL 100



Editor's Note: In addition to letters from our readers, we also include in Mail 100 letters from CompuServe and The Source. Those message writers are identified by their CompuServe (CIS ID) and Source (STC ID) identification numbers.

BULLET BUG

We've discovered a bug in the new Bullet software, and we're writing to let you know what to do to get rid of it.

If you save a file longer than 12K bytes, you won't be able to load it back into your computer. If your files are less than 12K bytes, the Bullet operates with no problems.

In order to eliminate this bug, we must replace the ROM inside your Bullet with a new version 2.1 ROM (a ROM is a Read Only Memory, which contains software for your Bullet). This is a simple procedure. The cover is removed from the Bullet, you unplug the old ROM and plug in the new ROM, then replace the cover. You may do the replacement yourself, or you may send your Bullet to us and we'll do it for you at no cost to you (except that you pay shipping to us).

Only version 2.0 of the software has this bug. To determine which version you have, go to BULLET.CO just as you normally do to use the Bullet, then type in TAPE and press enter. The version number of the software will be printed on your computer's display. If you have a version other than 2.0, you don't need to worry about this bug.

We regret the inconvenience this problem may have caused you. Please contact us and let us know whether you'd like us to send you a new version 2.1 ROM and installation instructions, or whether you wish to return your Bullet to us for installation.

Holmes Engineering Inc.
Murray, UT

STANWYCK STAMPEDE

Icertainly enjoy your magazine and the format in which the material is presented. I'm a computer professional with 25 years in the business. I receive several free subscriptions to various industry publications, but yours is one of the few I'm willing to pay for. I even enjoy the typos and missing lines in the programs. I look on them as a challenge to my debugging skills.

Most of all, I want to congratulate you on Peter Stanwyck's End User column. It was a good opening. I hope he can continue to deliver the goods.

He seemed to take the scatter-gun approach and hit several sacred cows in a few column inches. I'll be most interested to see which of his prey will be allowed to die and which will have their wounds bound. I hope he doesn't turn out to be a sports hunter, shooting for shooting's sake. We have enough of them already.

William N. Carter, CSP
Managing Director
Congruent Software Inc.
San Francisco, CA

After reading two-thirds of the way through your June issue, I felt I'd reached the point of not having to purchase *Portable 100* again. This feeling was based on the theory that the magazine was so pedantic and self-centered that you wouldn't remain in the marketplace long enough to worry about.

But then you added a hooker: Peter Stanwyck. After reading his article, I realized I'd have to buy *Portable 100* just to continue reading him. You wouldn't consider a separate subscription just for him, would you?

Robert J. Rydeen
President
Unijoint International
Fremont, NH

GREAT TRAVEL COMPANION

I just wanted to add my voice to the resounding praise of the PG Design

32K memory expansion unit for the 100.

I recently traveled to Ireland with two of these units and found that between the resident 32K in the 100 and one of the extension units, I had enough memory to store all of my notes on daily activities and expenses plus the program I use while traveling. These include a calendar, calculator, and a conversion program.

In the second unit I had an itinerary program and an expense program. I was able to frequently change memory units without any ill effects. In effect, then, I had 96K of storage space at my disposal, thus eliminating the need to carry a cassette recorder.

The units weren't treated with any special care, with the possible exception of watching out not to expose them to any static electricity from my body. They were x-rayed in airports, bounced by baggage handles, and generally exposed to the usual adversities of travel. All came through with flying colors.

I'm satisfied with Peter Van Heusen's product. I can't wait to see what other things he's going to develop for Model 100 lovers.

C. Davey Utter
Venice, CA

TWO DEFEND CODEKEEPER

I'm responding to Roby Sherman's letter in the April issue (page 8) claiming the 100 has a flaw preventing proper implementation of IPLed password security programs. Actually, it's not a flaw in the machine but rather a property of the Basic interpreter that allows one to easily break out of a Basic IPL program. Machine-language programs, however, can't be defeated in this way.

Before executing each statement, Basic checks to see if break or control-c was pressed. Only after a Basic program starts running will the command POKE 63056,128 disable the interception of the break.

SOFTWARE FOR THE RADIO SHACK MODEL 100
Available NOW!



TARGET-WRITER/5

MANUSCRIPTS, REPORTS, PROPOSALS, NEWSLETTERS

- FOOTNOTES¹ Up to 10 per page, typed "inline" where referenced are automatically moved to the bottom of the page. Footnotes stay on the page where referenced even when spacing changes!
- COLUMNS, Up to 10 for data; each may have decimal alignment plus each column can force right or left justified text.
- HANGING INDENTS under paragraph headings and under the "bullet" character of your choice. Paragraphs may be any length and are ended with the "ENTER" key.
- CHARACTER STYLES (superscript, subscript, underline, compressed, italic, expanded ... or whatever your printer will produce) pre-defined to *single character controls* for on/off operation.
- **MIXED** CHARACTER STYLES ON THE SAME LINE with even margins!
- CENTERING, RIGHT JUSTIFIED, or LEFT and RIGHT on the same line!
- DAISYWHEEL OPTION to pause "mid-line" during printing for print wheel change.

Plus:

- | | | |
|--------------------------------|--------------------------------|-------------------------------|
| — SUPPORTS DVI | — SERIAL OR PARALLEL OUTPUT | — HEADINGS/FOOTING/PAGE # |
| — JUSTIFIED MARGINS | — CHAPTER NUMBERING, ASSEMBLY | — CONTINUOUS or LETTERHEAD |
| — SINGLE-CHARACTER CONTROLS | — MULTIPLE COPIES | — CR/LF option |
| — PAGE BREAKS, SIZE AND LENGTH | — ADDING OTHER FILES | — Pass-through for ESC codes. |
| — DRAFT or FINAL COPY | — TAB WIDTH and MARGIN CONTROL | |

¹May be superscript, numbers, letters or symbols.

Price: \$69.95

TARGET-NEWSPRINT

TRUE MULTI-COLUMN PAGE LAYOUT

- | | |
|--------------------------|-----------------------|
| — 1, 2, 3, or 4 COLUMNS | — COLUMN HEADINGS |
| — BANNERS & FOOTERS | — ODD / EVEN GUTTER |
| — MIXED CHARACTER STYLES | — EVEN COLUMN MARGINS |

Price: \$59.95

TARGET-LETTERS

LIST MANAGEMENT & CUSTOMIZED CORRESPONDENCE

- Select names by list, by field values, or by inspection.
- Up to 9 variably-sized inserts per name may be merged from your address list into each letter being printed, while maintaining even margins.
- Basic FORMATTING features of TARGET-WRITER (except footnotes, columns, hanging indents) Plus:
 - SURNAME RECOGNITION
 - 1, 2, 3, OR 4 ACROSS LABELS
 - ATTENTION LINE
 - SALUTATION & 2nd PAGE HEADING
 - ENVELOPE PRINTING
 - OVERSIZED NAME & ADDRESS

Price: \$49.95

TARGET-STYLER

DESIGN YOUR OWN CHARACTERS!

- USE SCREEN GRAPHICS to design your own characters for downloading to an EPSON FX printer.
- A greatly MAGNIFIED full-screen 8 x 11 character grid is displayed on the screen, and you move the cursor around to turn on/off cells which represent the dot positions in a single character.
- You may DESIGN or REVISE from 1 to 255 CHARACTERS, DELETE CHARACTERS, DOWNLOAD CHARACTERS, and SAVE DESIGNS so later you can download them all by pressing one function key.

Price: \$29.95

VISA/MASTERCARD/COD

Add \$3.00 for shipping. COD ORDERS accepted only if accompanied by a \$5.00 handling fee. California residents add 6% or 6.5% sales tax as applicable. All prices include BASIC program on cassette and user guide. Specify printer type and model when ordering. You may call to verify your printer's codes are in our library; or enclose a copy of its control codes with your order. To order, call or send check or money order to:

TARGET SYSTEMS

BOX 507

PACIFIC GROVE, CA 93950

408-646-1547

On the other hand, machine-language programs aren't stopped by break or control-c on the 100. (The ASCII character 3 is simply read in.) Unless special programming techniques are used, reset will still cause a return to the menu from a machine-language program.

Any program can be stopped by performing a cold start on the 100. Although the cold start erases the RAM file directory, the information from the files remains stored in RAM and can be recovered by dumping RAM to cassette via a simple Basic program. Thus pass-

word lock protection in itself isn't sufficient to stop the determined and skilled from recovering files from the machine.

Richard J. Perry
Secure Systems Inc.
Blue Bell, PA

I was surprised to read the letter by R. Caley knocking Roby Sherman's Codekeeper. I'm a satisfied customer of this program and find it secure and worthwhile.

Mr. Caley showed us how to break through this code, but *only* if the ma-

chine is shut off while in Basic. The obvious answer is to simply shut off the 100 immediately after entering Codekeeper from the menu. Then there's absolutely no way of circumventing the code. Thus, Codekeeper does protect the 100 from being accessed.

As to the cost, to me it's worth the extra five dollars to have the additional benefits this program offers: sounding alarm, printing a warning along with your name and phone number on the panel each time an entry is tried, printing the date and time when somebody tries to enter your computer.

The only better program would be one that'd cause the 100 to shoot an anchor through the desk with a loud explosion when someone tries to steal it. Rather expensive, don't you think? Codekeeper will have to be the final answer.

Lee Ellis
Indio, CA

BONUS IN STEREO

Your article in the June issue about using microcassette recorders with the 100 was certainly useful, but it didn't tell me anything new. I followed the directions provided by Paul Andreasen in the January 1984 issue (page 20), using an Olympus SW 77 stereo microcassette recorder. It works fine, and I have an extra benefit I hadn't bargained for.

Because I wasn't sure if I'd have problems with a stereo unit, I decided to solder resistors to both input channels and do input-output as if in mono. That, your readers should take note, does *not* work. The two channels interfere with one another when sending signals to the computer. After one output channel was disconnected, everything worked perfectly.

Now the extra benefit: Although I've had close to perfect performance storing and retrieving long files, there was one occasion when a file I had stored simply wouldn't load. I kept getting an abort. Then I realized I had an automatic backup. The other channel! I disconnected channel A and clipped the wire to Channel B and the file loaded successfully.

For this reason alone, I'd definitely recommend getting a stereo microcassette. The stereo model didn't cost significantly more than a good mono version.

Bob Ellis
address not given

MAKE YOUR ENTIRE SYSTEM... PORTABLE



Around Town . . . or Around the World

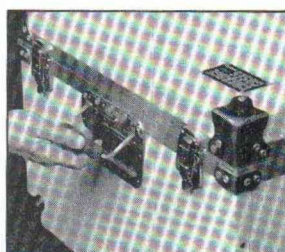
Now, take your *entire* computer system with you anywhere you go . . . completely protected . . . in a custom-designed case by Cabbage.

So light-weight, you can carry it with you like a briefcase. So rugged, you can ship your computer . . . plus, any combination of peripherals . . . safely and easily across country or around the world by commercial transport.

You Can Trust Cabbage Quality!

Over the last decade Cabbage has become widely recognized as one of the foremost manufacturers of custom-designed electronic, scientific, and audio-visual equipment cases in the world. Cabbage experience, quality, and craftsmanship is unsurpassed and unchallenged. We use only the finest, most durable materials and hardware, throughout. Each Cabbage Case is a custom-made, personalized piece of equipment . . . designed to satisfy your specific problems and needs. It is even exclusively serial numbered for your convenience and protection. You get all the extras . . . at no extra cost.

If it must arrive in perfect condition . . . protect it in a Cabbage Case.



Heavy-duty, nickel-plated steel hardware



Durable, high density foam interiors

CABBAGE CASES

2458 Wood Avenue • Columbus, Ohio 43221
(614) 486-2495

"Nothing's Tougher . . . Than a Cabbage"

GET TECHNICAL

Your April issue review of Portable Computer Support Group's DATA+ was good and quite correct. I've used DATA+, WRITE+, and SORT+ for some time and find them to be error-free and flexible.

In addition, the manuals provided are the best I've ever used for software. And when I did have a question, I called PCSG and was helped in a very courteous and efficient manner. They talked me through the problem and were very patient. It's rare today to find such friendly and willing people answering the phone.

On another matter, I must agree with some of your readers. I too find some of your articles of little technical use to users. I feel a computer magazine should be a primary source of both well-written technical articles on how to better use the computer and of advertising companies selling hardware and software to complement the computer.

Thank you for a good magazine. It gets better with each issue as you respond to readers' comments.

David DeWitt
Jaffrey, NH

NO VENEER HERE

Thank you for reviewing our hand-made oak Model 100 carrying cases in the July feature spread (page 33). In correction, please note we make the cases from *solid* wood, not veneer, particle board, or plywood. Solid wood offers maximum protection and beauty.

Dean Reyburn
Reyburn Woodcraft
Sparta, MI

TIGHT FIT

I wasn't surprised to learn that one user couldn't fit his upgrade 8K RAM into the available socket of the 100 (May 1984). In order to get my PG Design chip seated properly, I had to gently bend back an adjacent capacitor. It's a tight fit.

There was no mention of this problem in the manufacturer's literature so perhaps it's a quirk with just some machines.

Raymond M. Pepi
New York, NY

EXPNS+ CHANGE PROPOSED

I've discovered what I consider a significant bug in EXPNS+.

I own and use two other third-party software packages extensively. One is Scribe 3.0 by Chattanooga Systems and the other is The Time Machine by EVS Engineering. I've had a maddening, intermittent problem with both refusing to run for no apparent reason and giving bizarre error messages. On certain occasions, they'd run without incident, again for no apparent reason.

Investigation led to the fact these programs refused to run after EXPNS+ had been run, but would run after WRITE+ had run. I checked out the

program listing for WRITE+ and EXPNS+ and learned that when exiting, WRITE+ sets MAXFILES=1, which is the Basic default in the 100 system. EXPNS+ sets MAXFILES=0 when exiting to Basic, a value that effectively blocks any program that needs to open a file from running.

I propose to change line 100 of EXPNS+ to read:
100 CLOSE:GOSUB57:MAXFILES=1:
MENU

F.E. Rytell, Jr.
San Diego, CA ◀

NEW

FROM CUSTOM SOFTWARE

RENUMBER

The utility you've been waiting for! Now you can renumber your BASIC programs IN PLACE! This powerful, 100% machine-language program is relocatable to any convenient place in memory. Renumber all or part of a program. You specify line numbers and increment.

\$29.95

LET'S PLAY MONOPOLY

It's you against the computer in this fast paced version of the famous board game. The computer makes all its own decisions. Super fast, machine language graphics make this skillful game a pleasure to play.

\$29.95

ASSEMBLER

ALL NEW! 100% machine language. Supports 6 character labels. Psued-ops include, DB, DW, DM, DS, EQU, ORG and END. Immediate data can be in decimal, hex or ASCII form. Extensive documentation includes sample programs and information on the ROM.

\$32.95

MELODY MAKER

A musical program generator. Use simple cursor controls to enter sheet music. Melody Maker writes a program to play the song. Use Melody Maker to add musical routines to your own programs.

\$19.95

CUSTOM SOFTWARE

• 1308 Western • Wellington, Kansas 67152 •

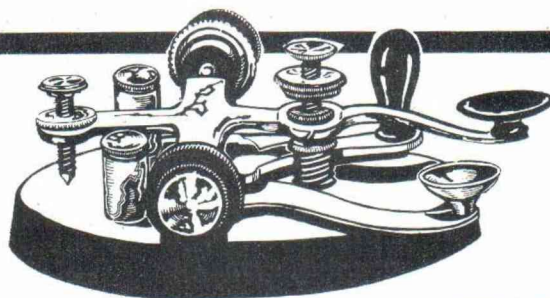
24 Hour Order Line: 316/326-6197



Please include \$1.00 for shipping.



THE WIRE



MICROS SAFE IN THE AIR

"There hasn't been a single confirmed case of a portable electronic device in a passenger-carrying aircraft causing interference to [an] aircraft communications or navigation system in the past 20 years."

That's the view of Frank White, chairman of a panel studying the effects of portable computers on the electronic systems used by aircraft.

White's group, Special Committee 156, was created in September 1983 by the Radio Technical Commission for Aeronautics, an airlines industry advisory board, in the wake of the controversy over using portable computers on passenger aircraft (see *Portable 100*, January 1984, page 13).

In a July 24 memorandum suggesting "a way to solve the problem given to SC 156," White added:

"[O]ther than perhaps takeoff and landing, we do not have

have an identified safety problem. If we could nail down just one case where a passenger operated device caused interference, turning it off stopped the interference, and turning it back on caused the interference to resume...I would feel we had something to sink our teeth into. As it is, we are chasing a will-o-the-wisp."

"At the moment," White continued, "I am aware of no candidate device that I would suggest using as a possible one to cause enough interference to be even detectable, let alone deteriorate aircraft communication or navigation performance."

White suggested his panel, composed of representatives of the aviation and computer industries, make three recommendations in its final report. He suggested:

- Airlines bar passengers from using portable electronic devices during takeoff and landing;



NEC Donates Portables to Five Universities. NEC Home Electronics donated 100 of its 8201 notebook-sized computers to five universities in the United States. The schools receiving 20 8201s each were MIT, UCLA, The University of Illinois, The University of Utah, and The University of Maryland. Here Marion Black-Ruffin, NEC's manager for marketing services, presents an 8201 to staff members at MIT.

EVERY DISK/VIDEO INTERFACE USER NEEDS THIS PROGRAM.

DISK-BUDDY manages your disk files with one keystroke!

The DISK-BUDDY menu is like the M100 command menu except it works on disk files instead of RAM files.

Just position the cursor over the file of your choice and press the function key. It takes one keystroke to:

- Display a disk directory of either drive
- Load a file or program from disk to RAM
- Run a program directly from disk

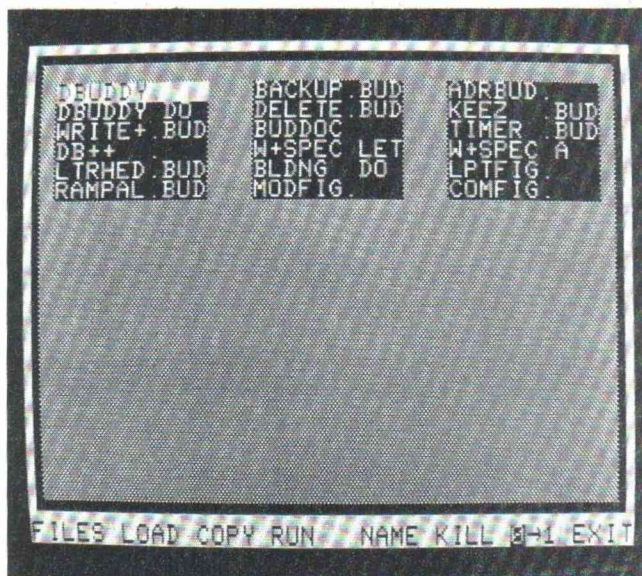
With two keystrokes:

- Delete a file from a disk (the second stroke is for safety)
- Send file of any length (up to the capacity of the disk) to serial port, printer, screen, cassette or another disk drive.

DISK-BUDDY unlocks the power of the M100 operating system. Commands for computer and peripherals, stored on disk, can be sent at the touch of a button.

One touch can ready your printer for word processing, another sets it for BASIC listings.

Change function key configurations instantly. Keep a set of key functions for word processing, telecommunications, editing, programming, etc.



*A typical Disk-Buddy Menu.
Note the function key labels on the command line.*

DISK-BUDDY IS A SOFTWARE BUNDLE!

Our package contains several programs, powerful utilities which could be sold separately.

RAM-Pal has many of the same powerful functions as DISK-BUDDY but manages RAM files.

Memory low? ADR.BUD dumps your current ADRS.DO and NOTE.DO files to disk, and optionally deletes them from RAM, with one key stroke, of course. Later, load and save them from the DISK-BUDDY menu; one key stroke each.

DISK-BUDDY works great with programs that use "spec" files and templates. Just keep your favorite models stored on disk. A key touch loads and saves it to RAM, another touch gets you into your application. Changing formats is just as simple: load the new template with a single keystroke.

DISK-BUDDY AND THE DISK-BUDDY BUNDLE, INCLUDING RAM-Pal, ADR.BUD, TIMER.BUD and other demonstration programs are shipped on disk with full instructions, plus information on interfacing your own programs with DISK-BUDDY. Turn your M100 into a powerful, friendly desk top system! Tips for driving your M100 are included.

BuddySystems

TO ORDER: Send check or money order for \$39.95 (plus \$2.00 postage and handling) to
BUDDY-SYSTEMS, 220 West 24th Street, New York, NY 10011 or phone (212) 243-2129 for C.O.D.

For TRS-80 Model 100, 24K RAM, DISK/VIDEO INTERFACE, WITH MONITOR, TV, OR LCD.

- SC 156 determine existing Federal Communications Commission radiation limits are safe in other than aviation bands; and
- SC 156 select a safe radiation limit for the primary bands used by aviation and ask the FCC to amend its present rules to add different radiation limits for those bands.

Those recommendations represent a better solution to the problem than revamping DO-119, the Radio Technical commission's existing guidelines on interference, White contended.

He said those guidelines were ignored by the airlines and manufacturers of portable devices. Any revamping of the guidelines, he argued, would meet a similar fate.

It is expected SC 156 will discuss White's recommendations at its next meeting scheduled for September 18-19.

MAGAZINE SHAKEOUT

Since early this year, analysts have predicted 1984 would be a shakeout year for computer magazines. Recent developments appear to be proving the doomsayers correct:

Softalk ceased publication of its *St. Game*; Atari canned its *Atari Connection*, and Radio Shack killed its *Microcomputer News*.

Hayden Publishing stopped printing *Personal Software*. Publisher Robert Lydon reportedly explained the magazine's circulation was fine but its advertising base was eroding. One figure cited by Lydon was the number of software companies operating when Hayden axed the magazine. In the spring of 1983, Lydon said, 4000 software companies were in business; a year later, 1000 were left.

Not dead, but limping is *List* magazine. Publisher Ted Leonsis has cut back that monthly's frequency to twice a year. There simply aren't enough software companies to make *List* viable, he reportedly said.

A PC jr. magazine, aptly named *jr.*, stopped publishing with its September issue. The magazine, published by CW Peterborough in Peterborough, NH, premiered in May on the heels of IBM's introduction of *jr.* The decision to kill the periodical came the day after IBM held a press conference in New York to announce enhancements aimed at pumping some life into sagging *jr.* sales.

Color Computer Magazine also became history, as publishing giant Ziff-Davis terminated the book because of shrinking advertising. The move occurred two weeks after one of the founders of Ziff's consumer and electronics magazine

division, Larry Sporn, was given a leave of absence from the company and replaced by Ken Koppel as president of the division.

KYOCERA PLANT IN CANADA

Flushed with the success of the Model 100 and its sister machines, the Olivetti M10 and NEC 8201, Kyocera International Inc. announced plans to build a plant employing some 2000 people in Vancouver, British Columbia, Canada.

According to a report by United Press International, Kyocera, manufacturer of the Model 100, has bought a 42-acre site from the Vancouver School District and plans to build a "campus-like" plant that will produce a wide range of products.

Bill Everitt, Kyocera's vice president for corporate communications, told UPI the Vancouver plant will be used to expand production and augment the company's production line. "Our products in Vancouver may change on a month's notice, depending on market conditions," Everitt said.

Kyocera was founded in 1959. It had international sales of \$1.1 billion in its most recent fiscal year. According to the company, it supplies 70 percent of the world's market for "fine" ceramic materials used in packaging electronic devices and integrated circuits.

TANDY NET SALES INCREASE

Tandy Corporation showed a 1 percent increase in net sales in its 1984 fiscal year ending June 30. Tandy's net sales for fiscal 1984 were \$281.8 million, while net sales for fiscal 1983 were \$278.5 million.

Net income per share of Tandy stock also increased from \$2.67 to \$2.75.

During the same period, Tandy's net sales increased 11 percent, from \$2.7 billion to \$2.4 billion.

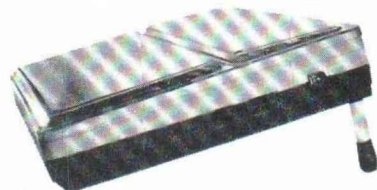
SOURCE CUTS PRICES

The Source, an information network for personal computer users and a subsidiary of The Reader's Digest Association, has reduced its registration fee from \$100 to \$49.95. "The expanding market of personal computer owners has made it possible for us to lower the price of The Source," Vice President for Sales and Marketing Anne Filippone said in a statement. "Research indicates that the demand for online services is about to explode. We believe The Source is ideally positioned, both through pricing and product content, to take advantage of that explosion."

STRONG VERSATILE HARD COVER FOR MODEL 100

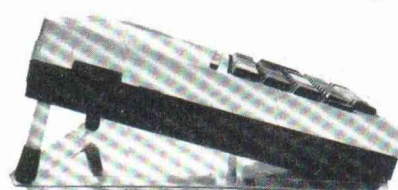
DESK TOP PROTECTION from dust, spills and things that get dropped. Optically clear so time and modem prompted messages are seen at a glance.

THE ULTIMATE LAP MACHINE! Invert cover and add KJM Prop Legs to create a stable interlocked unit at a most comfortable lap use angle.



THE PERFECT SOLUTION to proper protection of screen, keys, and key switch shafts when carrying in a briefcase, its softcase or in any case. Made of .080 inch thick high impact Eastman PETG plastic.

To be notified when available for other topless portables, send your name, address & model number.



\$1795 + \$200 S & H, Check or MO, Texas Res. add 5%.
30 Day Money Back Satisfaction Guarantee!

[Prop Legs
not included]

THE SOUTHWORTH COMPANY, Dept. F
4001 Hawthorne Ave., Dallas, TX 75219

HOLMES ACQUISITION SNUFFED

Acquisition negotiations between Holmes Engineering Inc., makers of wafer-tape drives for the Model 100, and Com Tel Inc. have been "delayed," but an insider at Holmes said the deal "is history."

In a report released by Com Tel, B. L. Frost, vice president, said the planned acquisition of Holmes had been delayed pending further negotiations between the companies. "We are delighted, however," Frost added, "that as a result of Com Tel's relationship as Holmes Engineering's sole supplier of circuit board assemblies, we continue to profit from Holmes' growing sales."

But an insider at Holmes said privately the deal with Com Tel was off and Holmes was negotiating with another company "with whom a merger would be far more advantageous to both organizations."

Com Tel, located in Salt Lake City, UT, is a 15-year-old company specializing in the design and manufacture of precision wound microscopic coils for the computer industry.

SHOOTING MICROS

In late summer, an artificial intelligence conference was held at Rensselaerville Institute near Albany, NY. The event inspired Doug Miller, in a humorous column distributed by United Press International, to question if the theme of the gathering, "Artificial Intelligence: Are We Being Outsmarted?," addressed the "real" issue needing treatment by AI experts.

Along with the innovations in computer technology, Miller noted, come reports of a dark human reaction, a homicidal response to machines dubbed "computer kill syndrome."

Miller wrote:

"*Science Digest* magazine says five computer shootings have been recorded, along with a couple of arsons and screw-driver stabbings....

"One man shot his computer because it refused time and again to run his software. Another opened fire on his machine because he thought he saw rats pouring out of it.

"And the syndrome knows no sex barriers. One woman bashed her uncooperative Apple with the heel of her shoe.

"Considering those examples of the impact of intelligent machines on humans, it begins to look like the questions set to be pursued at Rensselaerville may already have been answered.

"Instead of discussing how computers may be outsmarting us, maybe we ought to be finding out where to aim at the buggers to take them out with a single shot." ◀

WHAT'S A NERD?

If the popularity of microcomputers has done one thing, it is legitimize the nerd's role in popular culture.

What exactly is a nerd?

In a question and answer session with Hollywood reporter Vernon Scott, Robert Carradine and Anthony Edwards, the stars of the 20th Century Fox film *Revenge of the Nerds* gave their views on this burning cultural issue.

Q. What are a nerd's most common physical traits?

A. A large Adam's apple, big feet, zits, and spectacles.

Q. Other distinguishing features?

A. Heavy metal orthodontia.

Q. What is a nerd's favorite pasttime?

A. Working with a home computer.

Q. In what vehicle are nerds most often seen?

A. Public transportation.

Q. Nerd's dress code?

A. J.C. Penney white T-shirt and jeans three inches short.

Q. Favorite accessory?

A. Plastic pen pocket-protector.

Q. Shoes

A. Hush Puppies and always white socks.

Q. Favorite Groups?

A. Devo and Elvis Costello.

Q. Food?

A. Twinkies, peanut butter and jelly on potato chips.

Q. Favorite pin-up for dorm room?

A. Poster of new TRS-80 Radio Shack computer.

Q. Spectator sport?

A. Floppy disk retrieval.

Q. Jewelry?

A. Computerized wrist watch.

Q. Social involvement?

A. Running the record player at the school prom.

Q. Closest pals?

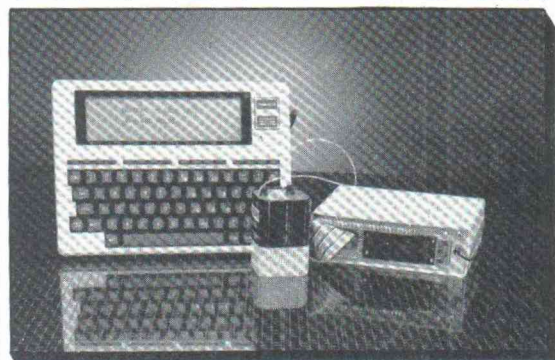
A. School faculty.

Q. Greatest tragedy?

A. B-minus grade on report card

"Nerds have always been with us," Carradine told Scott. "Clark Kent, Albert Einstein, Gilligan of 'Gilligan's Island' and Lyndon Baines Johnson." ◀

ANALOG VOLTAGE INPUTS FOR YOUR TRS-80 MODEL 100



Useful for measurement and control in laboratory, factory, or classroom.

12 bit integrating A/D converter
plus 8 digital input bits
8 latched digital output bits,
and 4 addressable output strobes.

*Price: \$580
including software*

We also manufacture the Model III/IV — A/D for the TRS-80 Models III, IV and 4P.

HUMPHREY INSTRUMENTS, INC. (609) 896-1612
35 Cold Soil Road Lawrenceville, New Jersey 08648

NEW PRODUCTS



TWO 100 AIDS THAT ENHANCE AND ASSEMBLE

Telpro, from Micro Demon Inc., adds features to the Model 100's Telcom program.

When using Telpro, you can kill files, access the time, set-reset an alarm, read text files, list Basic programs, upload Basic programs, and append data to the end of a text file.

If combined with Pro Aid, you have Telpro's features with Pro Aid's function keys capability. And when you exit from Telcom, Telpro turns both itself and Pro Aid off so no cold starts occur by accident.

Telpro sells for \$49.95 plus \$1.50 shipping and handling.

ASM is a powerful 8085 assembler, also from Micro Demon. It only requires 3.2K of memory and can assemble a thousand lines of source code in a few seconds.

ASM is written in machine language, but comes with a one-line Basic interface making it easy to load and run. Producing an object file (.CO extension) from the source file, it doesn't place the code directly into memory.

Some features include: multiple statements on a line, source files with any mixture of upper- and lowercase characters, and customization of mnemonics. It's completely documented. It sells for \$69.95.

Both Telpro and ASM are available from Micro Demon Inc., P.O. Box 50162, Columbia, SC 29250. Interested persons can also call 803-733-0980 24 hours a day.

SMALL AND FRIENDLY PORTABLE DISK DRIVE

A furry animal has lent its name to a new disk drive for the 100. Chip-

munk, from Holmes Engineering, comes ready to plug into the computer. No software installation is required. Disk Basic and a powerful menu-driven operating system are included.

Power is provided by built-in rechargeable batteries or an AC adapter. Because of its small size, Chipmunk fits easily into a briefcase, along with the 100. Additional drives may be plugged into the Chipmunk to increase storage capacity.

The Chipmunk with connecting cables, manuals, and disk, retails for less than \$550. Contact Holmes Engineering, 5175 Greenpine Drive, Murray, UT 84123, 801-261-5652, for more information.

BOXED MEMORY ULTIMATE UPGRADE FOR EXPANSION

Add on boxes of RAM for the Model 100 are being offered by D. Collier, EE/CS Consultant, P.O. Box 437, Tonopah, AZ 85354. Each outboard box can hold up to 384K (12 32K-chips). Software provided with the boxes allows switching between 64K banks of memory, ROM enable and disable routines, and input from disk or cassette.

KEYBOARD SPEED HELP FOR SLUGGISH FINGERS

QuickType is a boon for those who don't type fast. . . " boasts Arnie Karush, President of PocketInfo Corp.

The program lets users define abbreviations one to three characters long for commonly used words, phrases, sentences, and paragraphs, thus providing a personal shorthand. The computer stores as many abbreviations as

needed, reducing the number of keystrokes necessary to type a document.

QuickType comes on cassette tape with a written user manual and sells for \$29.95. Inquiries should be sent to PocketInfo Corp., P.O. Box 152, Beaverton, OR 97075, 503-649-8145.

DOWN TO EARTH STAR GAZING WITH NAVIGATION PAC

Computer navigation for the 100 has never been easier. Celestial Software's new Navigation Pac Plus has built-in almanac data for the sun and 57 stars from 1983 until the year 2000.

Some of the eight programs included are: sun and star reduction (with almanac), sight reduction (all bodies), and star identification. Complete with instruction manual, Navigation Pac Plus costs \$39.95. Include \$2 for shipping and mail to Celestial Software, 3010 Warrington Ave., Lakeland, FL 33803, 813-686-3311.

CAR-TO-OFFICE COMMUNICATIONS VIA PORTABLES

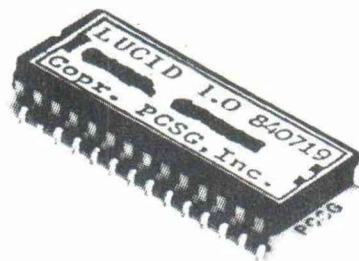
An interface has been developed to enable users of cellular radios to send and receive data in their cars by using a portable computer. Known as The Bridge, manufacturer Spectrum Cellular promises the interface's availability by the fourth quarter of 1984.

"It's the same concept as using a telephone modem, but instead of phone lines, you use cellular air waves to send or receive data," states Spectrum President Dana Verrill. "Anyone with a cellular radio and portable computer with an RS-232 port can install The Bridge in their cars and be in constant . . . communications with their office."

Spectrum Cellular is located in Dallas, TX. For more information contact 214-733-4512.

Not only a spreadsheet, but a program generator as well.
So good we sell it on a satisfaction guaranteed 30 day trial.

LUCID[®]



Appears on MAIN MENU like a built-in!

on Snap-in[™] ROM. Takes no memory to store or for operating overhead. All RAM is available for data storage.

IS HERE!

LUCID[®] is truly the spreadsheet plus. The result of a splendid, exhaustive research and development program to produce the fastest, most feature-rich spreadsheet for the Model 100 that gives you capabilities you cannot equal with Multiplan* or even Lotus 1-2-3**.

\$149.95. Call 1-800-641-4645, ext. 207 for free info pak.

Portable Computer Support Group, Inc.

11035 Harry Hines Blvd., #207, Dallas, Tx. 75229

First with software for the Model 100. 1-214-351-0564

BUSCH LEAGUE

DAVID BUSCH



CREATE AND SAVE YOUR FAVORITE SCREENS WITH SCREEN DESIGNER

Program generators are complex pieces of software. So far in this series we've tried to introduce the concepts behind building a program from scratch with Basic.

You've seen how to load ASCII program files, manipulate them, modify them, and write them out as new programs.

You've also learned how to create new program lines from scratch, using your own specifications.

MORE POWER. Now we're ready for a more powerful program-generating tool: Screen Designer, a program allowing you to "draw" instructional screens on your Model 100, press a key, and have the computer write a program to reproduce that screen.

The result can be merged with programs of your own, saving you quite a bit of coding time. In fact, Screen Designer wrote its own introductory screen.

To use Screen Designer, move the cursor (a plus sign) around the screen, using the arrow keys.

Pressing shift and an arrow will move the cursor to the edge of the screen. Shift-left arrow will move the cursor to the far left of the screen. Shift-down arrow will keep the cursor in the same column, but move it to the bottom of the Model 100 screen.

Pressing enter will move you down to the start of the next line.

Alphanumeric or graphics characters are typed in normally.

When you finish designing the screen, press escape. The Model 100 will PEEK screen memory to see your

display and write a program to reproduce that screen.

Sounds simple, right? I wish it had been that easy to program!

TWO MODULES. Screen Designer consists of two modules. Starting at line 270, you may draw on the screen. The Model 100 waits for you to press a key, and stores the key value in variable A\$.

If A\$ was escape, the program branches to the screen reading routine to be explained later. If A\$ was one of the unshifted arrow keys, CHR\$(27) through CHR\$(31), the program branches to one of four subroutines which update the position of the cursor.

We use PRINT@ to print the cursor at a location determined by the variable PLACE. Whenever the right arrow key is pressed, then PLACE becomes PLACE + 1. If the left arrow key is pressed, then PLACE is PLACE - 1.

Hitting the down arrow will update PLACE to PLACE plus 40 (in order to move the cursor down a row).

The up arrow key will make PLACE equal to (you guessed it) PLACE minus 40.

At no time is PLACE allowed to become more than 319 or less than zero, which would place the cursor outside the screen.

When the shifted arrow keys are pressed, we have to do a bit of calculating to figure where PLACE must be. For example, if shift-left arrow is pressed (line 330), we calculate which row the cursor is in, and make PLACE equal to the first position in that row.

Anytime the cursor moves we print a

space, SP\$, in its old location, thereby "erasing" the cursor. When other characters are printed to the screen, the old character is not erased. Otherwise, it would be rather difficult to build a screen design.

PEEK AND WRITE. Don't be lulled into complacency if you have followed the program so far. It gets better. Once escape is pressed, the program branches to line 670, where we PEEK the screen and write program lines.

All the lines we write will be stored in a string array, PROGRAM\$(n). A variable, COUNTER, tracks which element in PROGRAM\$(n) is being used. Generally, the first line of our finished program will be in PROGRAM\$(1), the second line in PROGRAM\$(2), and so forth.

Each program line will consist of a line number, NUMBER. This variable is upped each time we start a new line, by adding INCRMENT to it. INCRMENT is defined as 10, but you may change this if you wish.

When we have each new NUMBER, it is changed to a string representation, in line 1000, and a space added to separate the line number from the program statement.

NESTED LOOPS. Reading the screen starts in line 710, with the first of some impossibly nested For-Next loops.

The outer loop counts off N from zero to 319, in steps of 40, so N will equal each position starting a row. That is, the first time through the outer loop, N will equal zero. The second time, it will equal 39, and so forth.

An inner loop counts off N1 from N to N plus 39, so N1 will equal each of the screen positions in a single row. We nest the loops in this manner, so we can treat each screen line as an individual entity.

The program PEEKs screen memory for each location in line 780. It also

looks for where the first non-space character on a screen line is and where the last non-space character is printed.

These locations are stored in BFLAG and EFLAG. Thus the program knows how far to TAB to print the first non-space character and where to put the closing quotation mark after the last one. That means you get a line like 10 below, rather than 20:

```
10 PRINT TAB(8) "HELLO!"
20 PRINT "  HELLO"
```

Nifty, eh? The TAB part is assembled in line 880. We take the middle portion of a string representation of BFLAG, starting at position 2, in order to cut off the leading space. The characters on the line are added and a quote placed at the position pointed to by EFLAG.

NEW PROGRAM. Our new program starts off with a line that clears the screen (assembled in line 680) and fin-

ishes with an INKEY\$ loop that keeps the image on the screen until we press a key. The finished program is written to a RAM file starting in line 1020. Before writing the file, the program makes a check to see that there are no lines with PRINT TAB(0). While TAB(0) won't hurt anything, it really isn't needed. If any are found, they are deleted in line 1060.

You may load the finished .DO file, merge it with your programs, or save it as a .BA file. ◀

```
10 ' *****
20 ' *
30 ' *   Screen Designer   *
40 ' *
50 ' *****
60 '
70 CLEAR 1000
80 DEFINT A-Y
90 DIM PROGRAM$(40)
100 CLS
110 PRINT TAB(10) "Screen Designer "
120 PRINT
130 PRINT TAB(3) "Draw on screen using
    arrow keys to "
140 PRINT TAB(3) "move cursor.
    Letters, numbers, & "
```

```
150 PRINT TAB(3) "graphics can be
    written. Shift "
160 PRINT TAB(3) "plus arrow moves to
    edge. "
170 PRINT TAB(8) "== HIT ANY KEY ==";
180 A$=INKEY$
    : IF A$="" GOTO 180
190 INCRMENT=10
200 B=0
    : E=320
210 COUNTER=1
    : PLACE=0
220 C=43
    : SP$=CHR$(32)
230 LINE INPUT "ENTER FILE NAME: "; F$
240 CLS
```

READER SERVICE

Obtain more information concerning products advertised in this month's issue of **PORTABLE 100** — it's simple and free!

- ☐ Answer questions A through H on the card opposite.
- ☐ Circle the number(s) corresponding to advertisements for which you would like more information.
- ☐ Either (a) print or type your name and complete address on the attached card and mail; or (b) telephone **TOLL FREE:**

1-800-225-5800

and give the operator your name and address. The operator will then ask you several of the questions (A through H) and which issue you are referring to (i.e., Issue 8401 - January 1984), as well as in which Reader Service numbers you are interested.

- ☐ The literature you have requested will be mailed to you free of charge directly from the manufacturer.
- ☐ Please bear in mind that sending information represents a major expenditure on behalf of the advertisers. **PLEASE BE SELECTIVE IN YOUR CHOICES.**
- ☐ Allow 3 to 5 weeks delivery time for advertisers' material (1 to 3 weeks if you telephone 1-800-225-5800).

IF YOUR NEED IS MORE IMMEDIATE, PLEASE CONTACT THE ADVERTISER DIRECTLY


```

250 IF F$="" THEN F$="TEST.DO"
260 PLACE=B
270 A$=INKEY$
   : IF A$=""GOTO 270
280 IF A$=CHR$(27) THEN PRINT @PLACE,
   SP$;
   : GOTO 670
290 IF A$=CHR$(30) THEN 420
300 IF A$=CHR$(31) THEN 490
310 IF A$=CHR$(28) THEN 550
320 IF A$=CHR$(29) THEN 610
330 IF A$=CHR$(1) THEN PRINT @PLACE,
   SP$;
   : PLACE=(INT(PLACE/40)*40)
   : GOTO 450
340 IF A$=CHR$(6) THEN PRINT @PLACE,
   SP$;
   : PLACE=INT(PLACE/40)*40+39
   : GOTO 450
350 IF A$=CHR$(20) THEN PRINT @PLACE,
   SP$;
   : PLACE=PLACE MOD 40
   : GOTO 450
360 IF A$=CHR$(2) THEN PRINT @PLACE,
   SP$;
   : PLACE=PLACE MOD 40+280
   : GOTO 450
370 IF A$=CHR$(13) THEN PRINT @PLACE,
   SP$;
   : P=(INT(PLACE/40)*40)+40

```

```

   : IF P<E THEN PLACE=P
   : GOTO 450
   ELSE GOTO 450
380 A=ASC(A$)
390 PRINT @PLACE,CHR$(A);
400 IF PLACE+1<E THEN PLACE=PLACE+1
   : PRINT @PLACE,CHR$(C);
410 GOTO 270
420 IF PLACE-40<B THEN 270
430 PRINT @PLACE,SP$;
440 PLACE=PLACE-40
450 IF PLACE=319 THEN PLACE=318
460 PRINT @PLACE,CHR$(C);
470 C=43
480 GOTO 270
490 IF PLACE+40>E THEN 270
500 PRINT @PLACE,SP$;
510 PLACE=PLACE+40
520 PRINT @PLACE,CHR$(C)
530 C=43
540 GOTO 270
550 IF PLACE+1>E THEN 270
560 PRINT @PLACE,SP$;
570 PLACE=PLACE+1
580 PRINT @PLACE,CHR$(C);
590 C=43
600 GOTO 270
610 IF PLACE-1<0 THEN 270
620 PRINT @PLACE,SP$;
630 PLACE=PLACE-1
640 PRINT @PLACE,CHR$(C);

```

ThinType™ 80

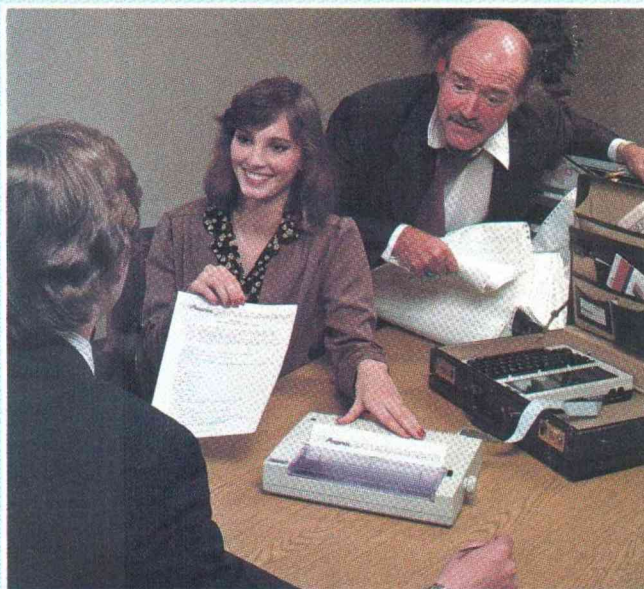
BATTERY POWERED LETTER QUALITY PRINTING

True Solid Font Portable Printing

ThinType's self contained A/C Adapter/Charger and Rechargeable Batteries provide Letter Quality Printing Anytime, Anywhere!

- 15 C.P.S. Bidirectional Impact Printing
- No Thermal-Ink/Jet Print Smear Problems
- Over 2 Million Characters Per Replaceable Ink Roll
- Easily Operates in Half a Briefcase

Retail Price: \$395



"Some Have It, Some Don't"

Axonix

The Portable Peripherals People
417 Wakara Way, S.L.C., Utah 84108

Call Toll Free **800-821-7093** or 801-582-9271

OUR BIGGEST ACHIEVEMENT IS ALSO OUR SMALLEST.



Only Text Power 100™ has Page Plot.™ At a glance you can see the full format of every page before printing.

Include the make of your printer with your order.
Text Power100™ works with parallel printers only.
Include \$10.00 for each additional printer.
Make checks payable to The Covington Group.

Send your order to:
The Covington Group
310 Riverside Drive, Suite 916
New York City, N.Y. 10025
Questions? Phone 212 678-0064/864-1700

Name _____

Street _____

City _____ State _____ Zip _____

Phone _____ Master/Visa Card No. _____ Exp. Date _____

Computer _____ Signature _____

TEXT POWER 100

Who says size doesn't count?

From the software ads around here, you might get the impression that your portable computer can store the knowledge of the universe. But it can't. That's why you need to know just how big the software is. Or how small.

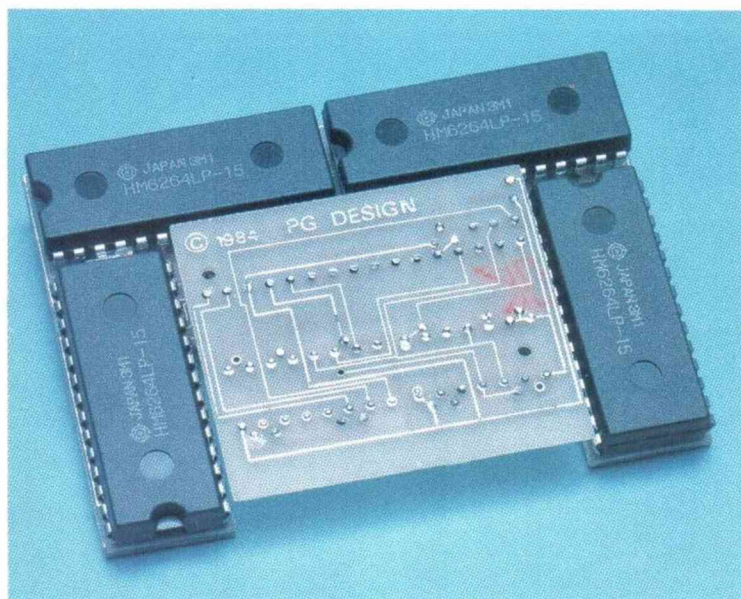
Keep this in memory: Text Power 100™ is 2,500 bytes long. Elf-writer (by Ceres Software) is 10,000 bytes long. Write + (by Portable Computer Support Group) is 3.5K. The Traveling Writer™ (by Traveling Software) is 5000 bytes. When our competitors' ads don't tell you how big their programs are, they're trying to tell you something.

Size is just one advantage of our 100 percent machine-language code. The other is speed. Text Power 100™ formats faster than you can imagine. Faster than all of the competition's products working in parallel. Fast enough to format the Bible in 12 minutes. Right-justified.

Text Power 100™ features: Page Plot,™ merge text, edit mode, label printing, page numbering, formatted preview mode, parameter/file memory, right justification, footers, headers, internal format controls, page length, top margin, bottom margin, left margin, right margin, double/single spacing, vertical center, horizontal center, page break display, new page command, full printer customization and more.

Text Power 100.™ For the Model 100, Olivetti M10 and NEC PC-8201A. \$49.95 plus \$2.00 shipping. Available exclusively from The Covington Group/310 Riverside Drive, Suite 916, New York City, NY 10025/ 212 678-0064, 864-1700.

32K RAM CHIPS FOR YOUR MODEL 100



- Expand your (8K, 16K, 24K, or 32K) Model 100 to an additional 32K.
- Store two 32K programs without having to reload.
- Each 32K is bank selectable with a single line BASIC program (programs may not transfer information between banks).
- The application programs already in your Model 100 (BASIC, TEXT, TELECOM, ADDRSS, SCHEDL) may be used in either bank.
- The expansion RAM maintains its own menu of the data stored in it.

- Self-contained battery backup power
- Low power CMOS design, enhances battery life.
- Go beyond the memory range by installing additional 32K modules without losing the data on the first 32K module.
- Easy installation! Installs into the expansion bus in the bottom of the Model 100 — Then concealed once the cover is reinstalled.
- High quality manufacturing and warranty.
- The problem of "more memory" for the Model 100 no longer exists. We've made a great computer near perfect!
- List 325.00 (Just one third the cost of an additional Model 100.)



**P.G.
DESIGN
ELECTRONICS, INC.**

66040 GRATIOT, RICHMOND, MICH. 48062 (313) 727-2744

NO WARRANTY ON BATTERIES TRS-80 TRADE MARK RADIO SHACK
DEALER INQUIRIES INVITED


```

650 C=43
660 GOTO 270
670 GOSUB 980
680 PROGRAM$(COUNTER)=PROGRA
    M$(COUNTER)+"CLS"
690 NUMBER=NUMBER+INCRMENT
700 COUNTER=COUNTER+1
710 FOR N=0 TO 319 STEP 40
720 BFLAG=0
730 EFLAG=0
740 N3=0
750 PR$=""
760 FOR N1=N TO N+39
770 N3=N3+1
780 T=PEEK(N1+65024)
790 PRINT @N1,CHR$(239);
800 IF BFLAG>0 THEN 820
810 IF T<>32 THEN BFLAG=N3
    : EFLAG=N3
    ELSE 840
820 PR$=PR$+CHR$(T)
830 IF T<>32 THEN EFLAG=N3
840 NEXT N1
850 IF RIGHT$(PR$,1)=SP$ THEN PR$=
    LEFT$(PR$,LEN(PR$)-1)
860 IF EFLAG=40 THEN L$="";
    ELSE L$=""
870 IF BFLAG=0 THEN 900
880 PROGRAM$(COUNTER)=STR$(NUMBER)+"
    PRINT TAB(""+MID$(STR$(BFLAG-1),
    2)+")"+CHR$(34)+MID$(PR$,1,
    EFLAG-(BFLAG-2))+CHR$(34)+L$
890 GOTO 910
900 PROGRAM$(COUNTER)=STR$(NUMBER)+"

```

```

PRINT"
910 COUNTER=COUNTER+1
920 NUMBER=NUMBER+INCRMENT
930 NEXT N
940 PROGRAM$(COUNTER-1)=PROG
    RAM$(COUNTER-1)+";"
950 GOSUB 980
960 PROGRAM$(COUNTER)=PROGRA
    M$(COUNTER)+" "+A$=INKEY$:IF A$=
    "+CHR$(34)+CHR$(34)+" G
    OTO"+STR$(NUMBER)
970 GOTO 1020
980 NUMBER=NUMBER+INCRMENT
990 COUNTER=COUNTER+1
1000 PROGRAM$(COUNTER)=STR$(NUMBER)+"
    "
1010 RETURN
1020 OPEN F$ FOR OUTPUT AS 1
1030 FOR N=1 TO COUNTER
1040 I=INSTR(PROGRAM$(N),"TAB(0)")
1050 IF I=0GOTO 1070
1060 PROGRAM$(N)=LEFT$(PROGRAM$(N),
    I-1)+MID$(PROGRAM$(N),I+6)
1070 PRINT #1,PROGRAM$(N)
1080 PRINT PROGRAM$(N)
1090 NEXT N
1100 CLOSE 1
1110 CLS
1120 PRINT TAB(10)"Do it once more?"
1130 PRINT TAB(15)"(Y/N)"
1140 A$=INKEY$
    : IF A$=""GOTO 1140
1150 IF A$="Y" OR A$="y" THEN RUN
    ELSE CLS

```

BE MORE PORTABLE

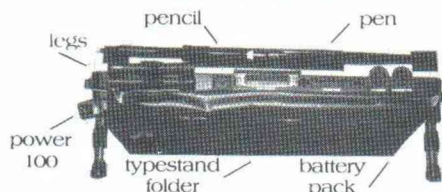
"The New WORKSTATION-100 now adds POWER-100"

POWERFUL

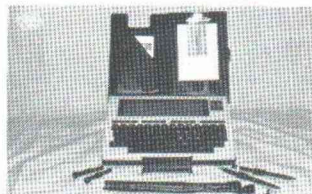


- Power-100 provides power for approx. 9 hours.
- Recharge while still connected to computer.
- Recharge with regular AC adapter (no extra re-charger needed).
- Compatible with and enhances other external battery systems.
- Works with NEC's and Olivetti's.
- Pays for itself with savings on alkaline batteries.

PORTABLE



- All WORKSTATION-100 components conveniently attach and detach using self-adhesive velcro—"They are there when you need them."
- Your computer will still fit in the original case—"As portable as ever."



Just \$45.95 for complete kit

PRACTICAL



- POWER-100 gives power freedom without portability loss.
- Convenient TYPESTAND/CLIP-FOLDER stores papers, manual and business cards while improving typing efficiency.
- PEN and PENCIL set are always handy.
- SUPPORT LEGS are always ready when needed.
- BATTERY PACK stores four "AA's".

CALL 1-804-794-6675

or mail Order Blank to:

A.R.M.S.

12131 Old Buckingham Rd.
Midlothian, VA 23113



Check
Approp.
Boxes

☐ Workstation-100
Complete Kit
(Save \$3.95) \$45.95

☐ Power 100
\$29.95

☐ Support
Legs \$3.95

☐ Typestand
Folder \$7.55

☐ Mech.
Pencil \$1.75

☐ Battery
Pack \$3.95

☐ Pen
\$2.75

Please add \$1.00 Shipping & Handling (VA residents add 4% sales tax)

CHK., VISA/M.C. # _____ Exp Date _____ Amount Enclosed \$ _____
(Circle one)

PORTABLE COMMANDER

JAKE COMMANDER



IF YOU ENJOY YOUR JOB, YOU NEVER WORK A DAY IN YOUR LIFE

One of the most notable and enjoyable benefits the Model 100 gives me is working at home. As someone that's endured the rigors of nine to five existence in both factory and office, I appreciate this freedom more than any other.

But it's not all clover. For those of you thinking of taking your Model 100 and earning a living with it from your abode, I offer these observations.

First, let me assure you that it's possible. Just as a typewriter provides bread and butter for a writer, the Model 100 can do the same for either a writer or a programmer.

Even if the target machine's Basic dialect differs from the 100's, most algorithms can be written, tested, and debugged on the 100 and transferred. Using CompuServe, it's even possible to write in languages other than Basic (although your overhead is likely to increase).

CREATIVE FREEDOM. The freedom of creativity is one of the luxuries I relish most. I suffer no distractions. No pressures from colleagues to alter my schedule or hop from one project to another. No management politics or pandering to the boss. My boss is me and if I'm lackadaisical, my conscience will badger me till I knuckle down.

Your hours can be determined by personal requirements rather than deferring to Mr. Average's schedule of nine till five.

Obviously, for survival's sake, there has to be some overlap with normal working hours. There's no use delivering a manuscript to the post office at 11 o'clock at night. Neither is it useful

sending material via modem if nobody is there to receive it.

This freedom can create problems, though. Sometimes a project (especially a typical programming one) can go on until three or four in the morning for weeks at a time. This plays havoc with any kind of discipline you're adhering to.

Thus the problem of time management rears its ugly head. You err on the side of work and suddenly you're a workaholic. I'm no fan of work for work's sake, but I've found this happening to me simply because working from home has become such an enjoyable pastime.

SELF-DISCIPLINE. Considerable self-discipline has to be applied. Otherwise, the fridge empties, the garbage builds up, you forget friends' names, and you realize you've become a single-track automaton with one aim in life — to finish that last project.

More times than I care to admit, I've had to abandon a project within 80 or 90 percent of its completion merely to regain my sanity and return some balance to my existence.

To be fair, this rarely happens in writing for magazines, but it happens often when programming; it devours time and leaves you wondering what happened to the daylight.

Another thing to be aware of (as in any business) is administration. This includes researching markets, acquiring work, and chasing payments. Someone has to do all this and if it's you, then your productivity is compromised — especially if you have to keep answering the telephone.

GNAWING CURIOSITY. Ignore it and you may be throwing away work. Ignore it and you're leaving yourself with an insatiable curiosity. (Later, when you give in to the ringing beast, a pricked conscience will prompt you to cover up your trail with white lies.)

The phone has an incredible knack of ringing just as you get up to speed. I can almost guarantee the scenario: I open a text file, write a paragraph, feel another three or four ready to pour into the keyboard, start the second... and of course the phone leaps out of its cradle.

Naturally it's important; naturally the conversation continues for half an hour; and naturally my three or four paragraphs disappear back to where they came from. Amusingly enough, while writing this piece, I had the curious experience of explaining to a caller that they'd interrupted me writing a paragraph about being interrupted by phone calls.

SOLUTION. My only successful solution to this problem has been to have someone else deal with the phone, the bills, and the correspondence; in short, the administration. In conjunction with enforced breaks, my own work schedule has become entirely reasonable.

On the positive side of the coin, when you finish a project and have no anxieties about what the next one is, you may be free to take a four-day weekend. (Although the temptation may still be there to spend the time curled up with a book researching the next project — in other words, working).

Well, despite the niggles, it beats working for a living. As a truck-driving philosopher once explained to me, "If you enjoy your job, you never do a day's work in your life." ◀

NEW

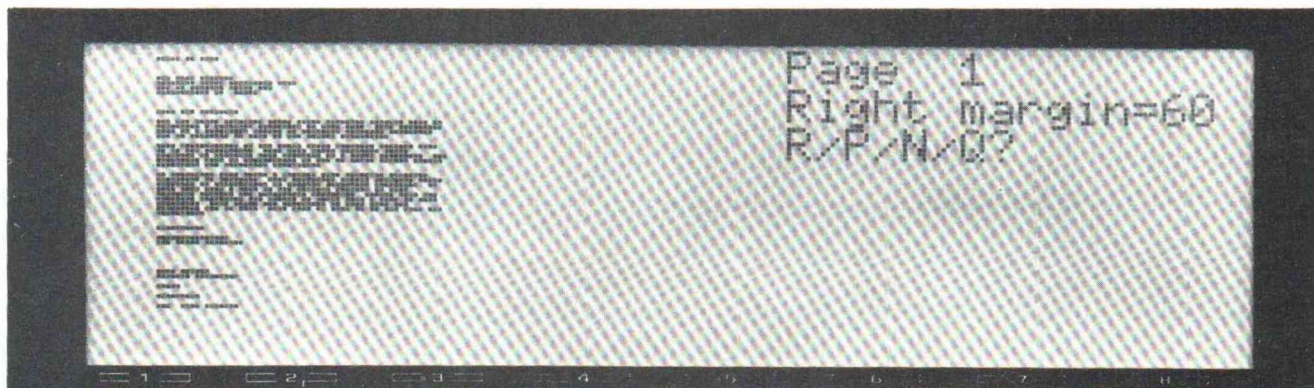
HIGH SPEED TEXT FORMATTER

WORDSTAR™ COMPATIBLE

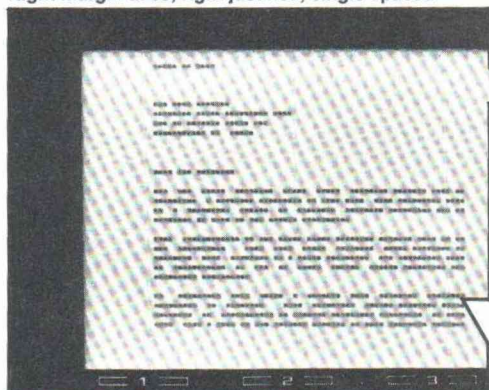
American Micro Products presents, **The Journalist**, a new text processing program that allows the user to view up to sixty-four lines of text directly on the Radio Shack Model 100 or

the NEC 8201 display. The Journalist is an extremely fast assembly language program that operates at about 4000 characters per second or one page per second.

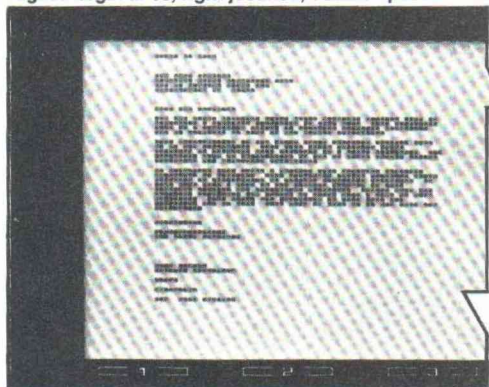
Change the margins and watch the text instantly reformat itself on the screen!



Right margin at 99, right justified, single spaced



Right margin at 65, right justified, double spaced



Right margin at 60, ragged right, single spaced

The Journalist has an impressive list of features:

- WORDSTAR compatible
- Pause between pages
- Left & right justification
- Footing capability
- Change margins
- Page numbers in heading or footing
- Forced and conditional paging
- Start at page, stop after page
- Auto page numbering
- Change page length, vertical margins
- Center Text
- Omit page number
- Embedded printer controls
- Set page number
- Multiple copies
- Embedded comments
- Variable line spacing
- Abandon printing
- Heading capability
- Plot Text
- Merge other files
- Boldface and underline

Call or write for information describing our other model 100 and 8201A programs: SPREADSHEET, SPREADSHEET TEMPLATES, INCOME PROPERTY ANALYSIS, PORTFOLIO ANALYSIS, CURVE FITTING, HISTOGRAM AND PLOT, EQUATION SOLVER, EQUATION SOLVER TEMPLATES, RPN CALCULATOR, FORTH, FILE MANAGER, and ASSEMBLER.

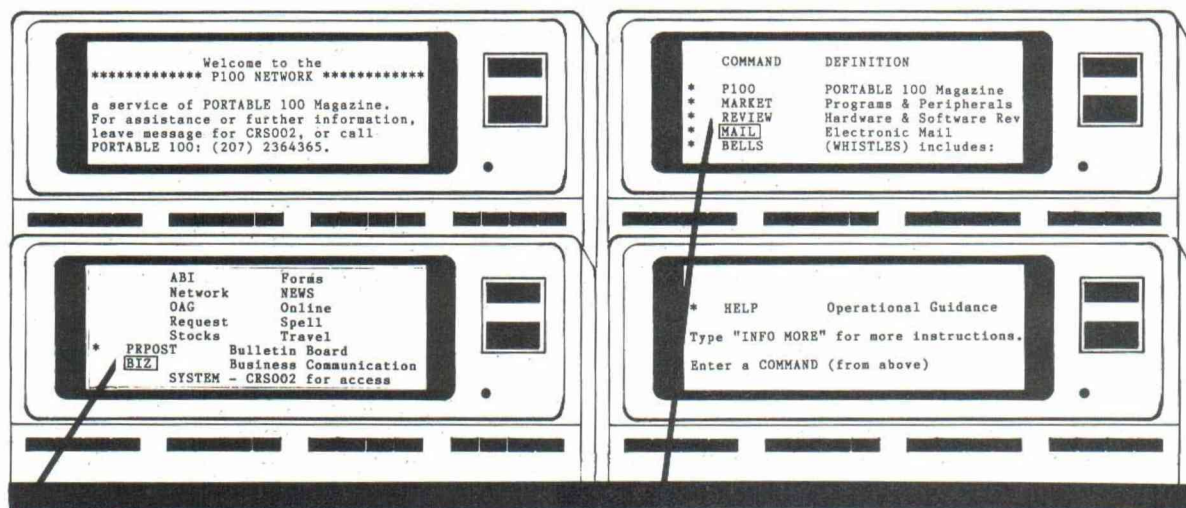
**YOU EXPECT THE BEST FROM
AMERICAN MICRO PRODUCTS**



AMERICAN MICRO PRODUCTS, INC.

705 North Bowser Richardson, Texas 75081 (214) 238-1815

Whether your needs are individual or business-oriented, **P100 NETWORK** can help. This full-service online information and functional-applications utility is dedicated exclusively to users of the Model 100.



New to the NETWORK is the **BUSINESS COMMUNICATION SYSTEM**, a specialized service with the small- and medium-sized business in mind. Customized screens (menus) are designed to permit you easy access to a host of services. If your company has a need for sales (for example), the following benefits are available on the **BUSINESS COMMUNICATION SYSTEM** of P100 NETWORK:

- * Maintaining individual sales lists
- * Storage of contracts
- * Inventory control and warehousing
- * Order processing
- * Price sheets
- * Customer lists
- * Stock- and customized- forms
- * Statements, invoices, purchase orders

Additional generalized services are portfolio management, stock quotes, market research data, travel scheduling, spelling checker, access to news services, networking capabilities — and the functions of Electronic Mail.

Electronic Mail permits you — the businessperson — to communicate with your office from anywhere in the world, at any time. Additionally, P100 NETWORK's Electronic Mail allows you to communicate with any other computer — it is hardware independent. You no longer need to worry about cumbersome cables or custom interfaces.

These are a few of the many benefits of P100 NETWORK to you, the businessperson or individual. Find out more about this easy-to-use system: fill out the coupon below and put the NETWORK to work for you.

P100 Network: 15 Elm Street,
Camden, Maine 04843

☐ Please send me P100 NETWORK's Demonstration cassette and brochure (@\$10.00 for First-class handling.)

☐ Enroll me now. Enclosed is \$35.00 for membership registration (includes Demonstration Cassette). I will receive full privileges and understand that you will bill my credit card (information provided on right) at the basic rate of \$16.50 per hour (non-prime hours) plus applicable surcharges for additional services. I understand that I will receive a full refund if I choose not to participate upon receipt of your material. For further information, contact Carl Cramer, P100 NETWORK.

15 Elm Street, Camden, Maine 04843. Tel (207)236-4365.

☐ Check enclosed for demonstration cassette (\$10.00)

Concessions: bulk discounts available

☐ Please charge my credit card for membership (\$35.00) and ongoing usage (@ prevailing rates)

☐ MasterCard ☐ Visa

Card # _____ Expiration _____

Signature _____

Name (Print) _____

Company Name _____

Street _____

City _____ State _____ Zip _____

Telephone _____

TELECOMPUTING

BILL LOUDEN



DELPHI SYSTEM FALLS SHORT OF BETTERING COMPETITORS

I recently had the opportunity to view a new videotex service called Delphi. Based in Boston, Delphi is attempting to offer the same array of services as CompuServe or The Source but falls far short of the mark.

Delphi is a prompt-driven service. While CompuServe and The Source are considered "menu" services, Delphi displays prompts (MAIN>, MAIL>, GAMES>, and so forth) to let you know what you are using.

PROMPT-DRIVEN. A prompt-driven service is actually a good design idea; it is less tedious than repetitive menus and more useable than a strict command-mode service.

In addition, if you forget how to respond to a prompt on Delphi, you may type "?" for a list of valid responses.

When you use Delphi, the first prompt you see is "MAIN>." By entering "?" you would see the options in exhibit 1.

From the main menu the offerings are standard for a videotex service: games, electronic mail, bulletin boards, news, and travel. But many of the choices suffer from being too "cutesy." What in the world is "Infomania" or "Writers-Corner" anyway? Before I dared explore those areas, I decided to examine more familiar ground.

I decided to look at The Official Airline Guide. I accidentally typed TTRAVEL. After correcting my mistake and pressing enter, Delphi responded, "I don't understand the term TTRAVEL in this context."

My screen still showed TRAVEL. I knew it was going to be a long day.

```
MAIN MENU:
BULLETIN-BOARDS
LIBRARY CONFERENCE
MAIL
DELPHI-ORACLE
NEWS
EXIT
ONLINE-MARKETS
FINANCIAL-SERVICES
PROFILE
GAMES
SCHEDULER
HELP
TRAVEL
INFOMANIA
WRITERS-CORNER
```

Exhibit 1. Main Menu.

NO BACKSPACE. Delphi does not recognize a backspace to correct input errors. If you use Delphi, you had better be a perfect typist. Fortunately, most Delphi commands can be abbreviated to three letters. I tried again, entering TRA carefully and pressing enter.

```
TRAVEL MENU:
TRAVEL-LIBRARY
BULLETIN-BOARDS
ITINERARY-PLANNING
INTERACTIVE-SERVICES
GROUPS
OFFICE-SERVICES
AGENCY-MENUS
HELP
EXIT
TRAVEL>
```

Exhibit 2. Travel Menu.

The prompt TRAVEL> appeared and I entered "?". The list in exhibit 2 appeared.

No OAG appeared so I entered INT for the interactive services. I again entered "?" and received the list in exhibit 3.

"Please respond?" I never got the chance! This was the beginning of a nightmare. Time after time, Delphi randomly gave me a message as if I had pressed enter without a response. I tried hanging up and reconnecting for a better modem line — all to no avail. As near as I can tell, the mystery carriage returns resulted from the best random-number generator I've ever seen.

RETURN TO OAG. But back to my search for the Official Airline Guide. At the TRAVEL> prompt I chose ITI for ITINERARY and viewed the list in exhibit 4.

I entered OAG and was connected to the Official Airline Guide's computers. While on OAG, everything worked consistently with the OAG commands (*Portable 100*, October 1983, page 24).

Back on Delphi, I decided to explore further. At the MAIN> prompt, I entered ONL for the Online-Markets. Again at the prompt, I entered "?" for a list of valid commands and received the list in exhibit 5.

I entered SP for the speciality services; under speciality, I found the list in exhibit 6.

Entering SO, I decided to see what software items were listed. The prompt EMPORIUM> was displayed.

EMPORIUM. In the software emporium I entered FIN to locate a specific piece of software. I tried "Wordstar" at the PRODUCT> prompt. Delphi responded, "Entries found: 0." So I tried "VisiCalc." This time Delphi responded, "Entries found: 6."


```

TRAVEL INTERACTIVE-SERVICES MENU:
VISA-APPLICATIONS
LIMOSINE-TRANSFERS
INSURANCE
TRAVELERS CHECKS
HELP
EXIT
INTER> Which Interactive Service? Please respond.

```

Exhibit 3. Interactive Services Menu.

```

AUTONET
BAZAAR
CATALOG
SPECIALITY SERVICES
HELP
EXIT
MARKETS>(AUTO,BAZAAR,CAT,SPECIALITY)?

```

Exhibit 5. On-line Markets Menu.

```

ITIN> ?
ITINERARY PLANNING MENU:
EXIT
HELP
OAG
PREFERENCE
FORMS
INFORMATION
RESERVATIONS
ITIN>

```

Exhibit 4. Itinerary Menu.

After pressing enter at the company and category prompts, Delphi displayed the listing in exhibit 7.

Without going into detail, the remaining five were identical. Not only that, but I had to press enter at each NEXT> prompt to get the next five-line record. After the sixth NEXT> I discovered the only way back to MAIN> was to enter EXIT. But what followed was the sequence in exhibit 8.

Delphi has no simple command to return to MAIN>. I found the easiest way to get back to the MAIN> prompt on Delphi was to hang up and call back in again. If you try to "type ahead" exit commands, make sure you do not enter

too many; an "exit" at the MAIN> prompt will log you off the system.

SHOWPIECE. A showpiece for Delphi is supposed to be the Kussmaul encyclopedia, named for the founder of Delphi, Wes Kussmaul. At the MAIN> prompt, I entered LIB for Library. The library options are in exhibit 9.

I entered KUSS for the encyclopedia. I expected this area to shine. I was prompted, "Search for:." I entered "tele" for telephone. Delphi responded, "Could not find "TELE" - scanning...TELE."

I thought this was very easy to use. If it didn't find an exact match, it was ap-



Magic Mouse

COMES TO THE MODEL 100!

SJI MAGIC MOUSE simplifies life with your Model 100. The business world can be a jungle--your Model 100 world doesn't have to be. SJI MAGIC MOUSE Provides you with a friendly computer environment that helps you avoid mistakes like accidentally erasing files or forgetting important appointments.

MAGIC MOUSE SOFTWARE

Mouse Calender Shows day's agenda, computes days between dates and day of the week.

Mouse Book Searches ADRS.DO for names, addresses, and telephone numbers.

Mouse Page Editor Advanced page editor that displays 9-line by 60-column screen, and more

Mouse Calculator Gives your 100 powerful calculator capabilities.

Mouse Draw Create graphics or just doodle, and dump the screen graphics to a standard parallel printer.

MAGIC MOUSE HARDWARE

Requires no modifications to your 100. Uses the RS-232C port leaving the parallel port free for printer use. Complete hardware includes Mouse, and dual channel, 7-bit analog-to-digital converter.

Magic Mouse Assembler Kernel saves RAM and speeds operations

PRICE
\$99.95

Ohio residents add 5% sales tax.
Check, Money Order, VISA, or Master Card.

SWINDELL JUDY, inc. Suite 349 4316 Dressler Rd., N.W. Canton, OH 44718 216-883-7504

ONLINE-MARKETS SPECIALITY-SERVICES MENU:
EXIT
HELP
FILM LIBRARY
RECORD-RELEASE INDEX
SOFTWARE EMPORIUM
SERVICES>

Exhibit 6. Specialty Services.

NEXT> #1
PRODUCT : VISICALC
COMPANY : VISICORP
CATEGORY : FINANCIAL APPLICATION
Apple 2 retail Price: \$250.00
Software Emporium price \$194.97
NEXT>

Exhibit 7. Emporium Listing.

parently searching for a term close to my request. Very nice.

In a few seconds, Delphi prompted, "Do you want TELEGRAPHY?" I entered "no." And I was off to the sequence of prompts and responses in exhibit 10.

Sigh. At last, Delphi proceeded to display the excerpt below:

"TELEPHONE, THE, an opera in one act by Gian Carlo MENOTTI, with libretto in English by the composer; ..."

Err. Excuse me? Did the AT&T breakup have some effect here? After some off-line research in a "real" encyclopedia, I discovered "TELEPHONE, THE" was indeed an opera; but what

ever happened to the "thing" my Model 100 was hooked up to?

I could go on and on and on. In many areas of Delphi, I found some good ideas and many nice tries, but overall I found Delphi to be a poor substitute — at any price — for the other available information services.

Save your money for a 1200 baud modem and stick with the repetitive menus of The Source or CompuServe. Delphi should stick to selling their encyclopedia door-to-door.

For the stout of heart wishing more information, you can contact Delphi at: General Videotex Corporation 617-491-3393. ◀

NEXT> exit
EMPORIUM> exit
SERVICES> exit
MARKETS> exit
MAIN>

Exhibit 8. Return to MAIN> Sequence.

the great oak company™

introduces

**THE FIRST PRINT
FORMATTER**

*made especially for writers
who hate asking for help!*

LONE WRITER™

\$35.00

With **LONE WRITER**, you can produce virtually any document — from business letters to slick ad layouts... effortlessly. Just insert a few simple, common sense commands for formatting and fonts into your text, and presto! Everything you write looks terrific!

ELEGANT FORMATTING FEATURES

- Line and Text Centering
- Left and Right Justification
- Vertical Spacing
- Hanging Bullets and Hyphens
- Page-wide Lines (broken and solid)
- Headers, Footers, Page Breaks and five styles of Page Numbering
- Pre-formatting option for fast printing

BUILT-IN INGENUITY — In many cases, you may not need commands at all — **LONE WRITER**'s default settings do the job.

UP TO 128 WAYS TO EXPRESS YOURSELF — 16 different fonts, adjustable to almost any printer; from EXTRA-LARGE EMPHASIZED to condensed, plus underlining, italics, subscript, superscript, and double-strike capabilities.

the great oak company™

Enclose check or money order for \$35.00
Send to: 9 Great Oak Road, Huntington, CT 06484

Available for the
TRS-80 Model 100
and **NEC 8201.**

**A STEP-BY-STEP
USER GUIDE**

Clear explanations
that make
commands
easy to remember,
plus handy tips
and examples for
solving common
(and uncommon)
formatting
problems.

TRS-80

**ALWAYS AT
SALE PRICES**



**WE SHIP
FAST!**

DFW COMPUTER CENTER
326 MAIN ST., GRAPEVINE
TEXAS 76051 — (817) 481-7283

OUR TRS-80s Have the Radio Shack warranty



To get YOUR SALE price CALL:
1-800-433-SALE


```

LIBRARY MENU:
DELPHI-INFO
DIALCOM
EXIT
HELP
KUSSMAUL-ENCYCLOPEDIA
LIBRARIAN
RESEARCH-LIBRARY
XREFLIBRARY>

```

Exhibit 9. Library Options.

```

Do you want TELEMACHUS? no
Do you want TELEMANN, GEORG PHILLIP? no
Do you want TELEOLGY? n
Do you want TELEPATHY? n
Do you want TELEPASSA? no
Do you want TELEPHONE, THE? yes

```

Exhibit 10. "Tele" Search.



OUR NEW COMPUTER IS SO FAST, I GET THE
ANSWER WHILE I'M STILL THINKING OF
THE QUESTION —

ALL NEW!

from Polar Engineering and Consulting

ROM 2

MACRO Assembler

NEW•Macro definition and invocation with symbolic arguments
 NEW•Conditional assembly code blocks
 Expression evaluation: parens, +, -, /, * and binary
 shift operators (NEW!), also binary, decimal,
 hexadecimal, octal, ASCII constants and labels
 NEW•Label table retained for symbolic debugging

SYMBOLIC Debugger

NEW•Full assembler expression evaluation (including labels)
 NEW•Interactively patch machine code
 Interactively execute 8085 instructions
 Trace program simulation
 Single step plus six other simulation modes with
 repeat count (NEW!)
 Set program counter breakpoints
 Hex/ASCII memory dump

•plus

- Renummer BASIC
- Extended BASIC/Machine
prog CALL command
- RAM files directory with
sizes
- Copy and Compare
RAM .DO files
- RAM .DO file global
text substitution

POLAR ENGINEERING

P.O. Box 7188

Nikishka, Alaska 99635

(907) 776-5529

\$95⁰⁰

Plus \$3.00 Shipping and Handling

FULL-DUPLEX

TERRY KEPNER



Editor's Note: Full-Duplex is dedicated to solving reader's Model 100 problems. Readers needing assistance should address their letters to Terry Kepner, P.O. Box 481, Peterborough, NH 03548. Readers are reminded to include a return address with all Full-Duplex correspondence.

EMBEDDED PRINTER CODES

After writing you on May 2 about embedded printer codes, the answer came to me on May 30 via a letter from John Hudelson. I had called him about his right justification program on page 8 in the March issue of *Portable 100*, which I had been unable to get to run. He sent me a copy, along with a letter containing boldface, underlining, elongated, and condensed characters.

Since he had also sent a copy of the letter using text, I could see what codes he had used and could use the same techniques for my printer.

The key to using these special codes is control-escape is the same as CHR\$(27), which is documented in the ASCII character code table on page 211 of my owner's manual.

By sending a control-escape, you notify the printer that a special sequence is on its way. Thus, for my DMP-100 printer, the code sequence to start elongated print is CHR\$(27), CHR\$(14). The embedded sequence would be: control-P control-escape control-P control-N.

To turn off elongated print the sequence is: (CHR\$(27),CHR\$(15), and the embedded codes: control-P control-escape control-O.

Starting boldface is more complex. CHR\$(27), CHR\$(31) translates to: control-P control-escape control-P control-N control-P control-escape control-P control-T. Turning it off is control-P control-escape control-P control-S control-P control-escape control-P control-O.

The DMP-100 supports italics using CHR\$(27), CHR\$(66). Since decimal 66 is the equivalent of an uppercase B, the embedded sequence is: control-P control-escape control-P B.

Similarly, condensed print is started by CHR\$(27), CHR\$(20), which is: control-P control-escape control-P control-T.

From these examples other embedded sequences for different printers and fonts should come easily.

Rick Mendosa
Santa Barbara, CA

► Sorry I misunderstood your first letter. I didn't realize you didn't know you could use the escape key to send CHR\$(27) as an embedded control code.

As for the rest, thanks a lot for explaining the codes on the DMP-100. I'm sure many readers will find the information useful.

TESTING PRINTER PORT

Concerning the hint by Don Griffith about testing port 187, via the INP(187) statement, for the printer status (*Portable 100*, April 1984, page 11), I use an older LP VII with my 8K Model 100 at 600 baud parallel and can get only a "printer disconnected" signal with the cable unplugged or a "printer ready" signal with the cable connected and the power switch either on or off.

Reading the value at the port shows that if the printer is unplugged, the value returned alternates between 198 and 199 decimal. If the cable is plugged in again, the value alternates between 194 and 195.

I have tried every combination of printer on-off, plugged-unplugged, parallel-7-bit-8-bit, COM ON-OFF, MDM ON-OFF, and CHR\$() I can think of.

Is this particular to the LPVII or is there another way to determine if the printer is ready?

I use the printer a lot and being able to check its status would be helpful.

Steve Harmon
Greenfield, IN

► When you examine port 187 via the INP command, you're checking one pin of your Model 100 centronics parallel port for a valid signal. With the LPVII disconnected, there's no signal, hence the "printer disconnected" signal (after all it is disconnected). When the printer is connected, the corresponding pin of the LPVII is internally grounded. When the printer is off, there's some electrical leakage from your Model 100 through the LPVII and back through this pin, so the INP command returns a valid signal of "printer ready."

On my Model 100, which I use with a Centronics 739, I get 198 and 199 for no printer or for printer turned off; 194 and 195 for printer turned on and ready; and 192 and 193 for printer on but off-line. When I have a hardware printer spooler in-line, I get 198 and 199 for spooler unplugged; 196 and 197 for spooler connected but turned off; and 194 and 195 for spooler ready.

It all depends on the electronics in your printer. In your case, I don't think there's any way to detect anything more complex than whether or not the printer is attached.

Does anyone have any advice to offer on this subject?

TEXT FILE SIZE

Is there any way to determine the size of a text file? This assumes that — as I invariably do — one has not noted the free space before starting and after finishing the document.

The only way I can think of is to paste a complete copy into the empty paste buffer and note the difference — but that assumes a small text file and

lots of spare RAM, an infrequent combination.

Richard Lewis
New York, NY

► I know the problem. The only solution is a short program (see listing 1) that reports the information you request.

This program counts both word length (important for writers) and character length of your files. It's about about 700 characters in length. If you eliminate the word counting logic, you can easily cut that figure in half. In either case, it requires about 600 bytes of free RAM to execute.

Hope that'll take care of your problem.

NULL MODEM FOR DEC

I built the null modem described in the September 1983 Portable 100 (page 38). I tried it between two Model 100's and between a Model 100 and a DEC Rainbow. It wouldn't work.

I then borrowed a commercial null modem and I was able to communicate between these computers. By testing the commercial unit I discovered it was connected significantly different (see figure 1).

Pin 1 to Pin 1
Pin 2 to Pin 3
Pin 3 to Pin 2
Pin 7 to Pin 7
Pin 6 to Pin 20
Pin 20 to Pin 6

Figure 1. DEC Null Modem

I built a null modem in this arrangement and it is working perfectly. Since the cable hoods prevent the cable from connecting to the Model 100, I built extensions onto the end of the cable and the Model 100. The extensions were made by bolting a male and female RS232 connector back-to-back and directly soldering the pins across.

Daniel Moniot
Glenshaw, PA

► I don't know why you had difficulty. I've used the null modem described in Portable 100 for over a year on a variety of computers (Radio Shack Models I, II, III, 4, 100, and Color Computer, and Apple IIe, Apple III, and Osborne computers) without any problems.

One thing to watch for, however, is

some computers require pins 4 and 5 to be cross-connected, like pins 2 and 3, or they won't work. Anyway, thanks for writing and telling us of your solution.

TAPE CONDITIONERS

I'm in the unenviable position of wanting a disk for my MEWS, but being unable to afford one. I'm a college student and money is tight. Therefore I'm resigned to using audio cassette tape as my mass storage system, specifically the Radio Shack CCR-81.

I am aware this is not an ideal medium for digital storage, both from an electronic point of view and from programming convenience. I can live with the lack of convenience, but is there any advice you have that can minimize the occasional failings of reloading tape-stored data?

I use TRS-80 "Deluxe certified computer tapes," clean and demagnetize the cassette head regularly, and store the tapes in their plastic cases away from any magnetic sources (as far as I know).

In spite of these precautions I get an occasional "I/O Error" when trying to reload BASIC programs and occasional "Aborted" messages when loading ASCII files. I verify the BASIC saves with "CLOAD?," yet when I try to load programs a week or two later, BAM!

I'm not aware of any method of verifying ASCII files short of leaving the original in memory and reloading the saved version under a new name. This is impractical since there usually isn't enough RAM for both copies.

I have seen a device for audio cassettes used as computer data storage called a "signal conditioner" (popular when Sinclairs were sold), but I don't know what it does other than work between the computer and cassette and supposedly provide the proper signal strength for up and down loading data. Have you seen any of these and do they really work?

Larry Webber
Columbus, IN

► One thing you haven't checked is your cassette recorder's head alignment. You may not realize it, but the cassette head is mounted on a pivot, with a small screw to align the head vertically. If the head has shifted slightly up or down, the misalignment will make it impossible to reload a tape.

This is an insidious problem as the alignment drift is gradual, but most noticeable in that the older a tape is, the less likely it will load.

What you need to do is to get an industry standard test tape (your local hi-fi shop should be able to get you one) and adjust the tape head to give the best possible sound. To do this you'll need to take apart your recorder and locate the alignment screw (directly beside the cassette head, usually to its left, towards the tape supply reel).

With the tape in play position and the recorder all set for use (sans case, of course), push the play button and slowly turn the alignment screw until the test tape gives you a clear, solid tone. Now put a small drop of paint over the edge of the screw to help lock it into position. If you use your recorder a lot, you may have to do this as often as every other month (the vibration of the head moving when you press play or stop causes the screw to come loose).

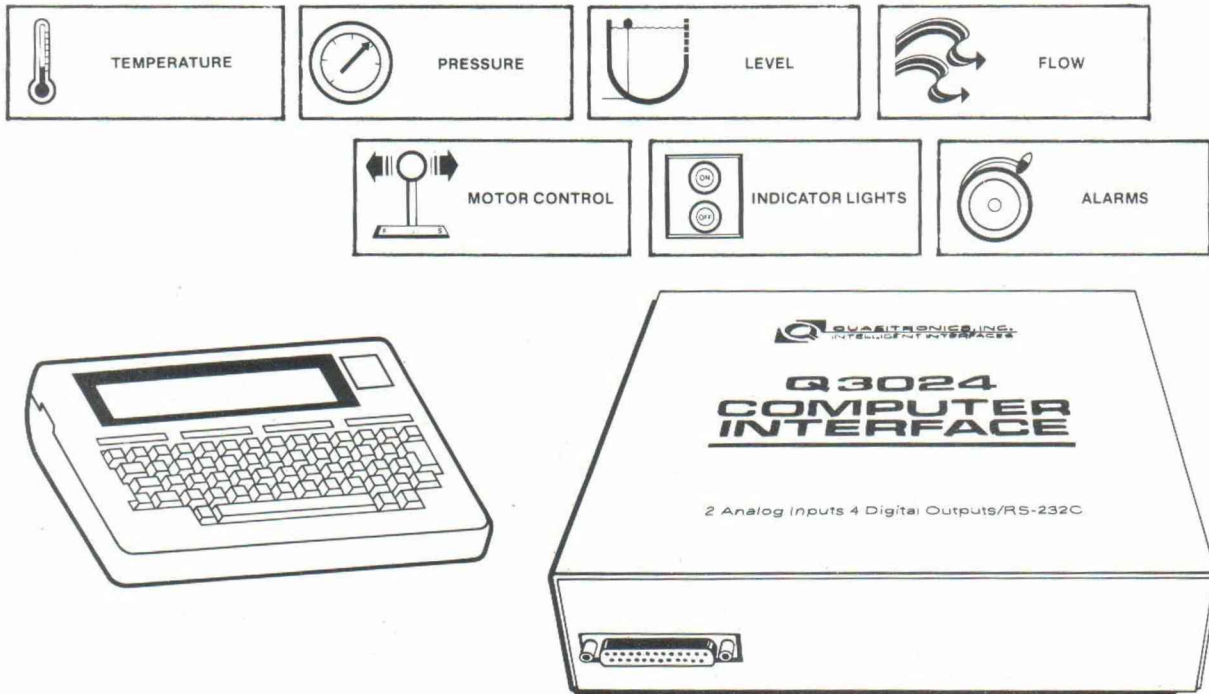
Another possible problem, as someone recently pointed out to me, is that the neoprene belts used to drive the cassette tapes can stretch with age or develop smooth or slick spots, making the tape player speed unreliable.

The Model 100 uses a strange method of storing data on tape: while the Commodore and Apple computers use tones to differentiate between a binary one and a binary zero stored on tape (a total of eight are used for each character stored on tape), the Model 100 uses the presence or absence of a blip between two timing marks to convey the same information. This is best seen with an oscilloscope, but I'll try to explain it here.

The Model 100 sends out a series of square waves at 1500 blips per second. These are timing marks. Between each square wave is a measured gap. To store a binary one on tape, the Model 100 puts a square wave blip in the gap. No blip means a binary zero, so no information in the gap is actually information on the order of a binary zero.

The Model 100 comes very close to sending out a true square wave, given the limitations of CMOS chip design, but the tape recorder is an analog device (music is primarily a series of sine waves, like ocean swells, not square waves, which are more like a series of boxes on a table). As an analog device, it deforms the square wave during recording, blurring the leading and trailing

Make your Model 100 Grow... with the Q-3024 Interface from Quasitronics



For less than \$500* you can add this proven interface unit and expand your Model 100's capabilities. Now you can use it for data collection and to control and actuate alarms, motors, pumps, heaters, laboratory apparatus and a host of other equipment. Hundreds of these quality interfaces have been in use for over a year with documented results.

Take a good close look at this combination of performance benefits.

- Easy to connect to any computer with an RS232 serial port.
- Can be programmed through Model 100 in BASIC.
- Contains a Z-80 micro.
- Can store information on discs to permit long-term data logging (or it can print out).
- Provides 2 high resolution analog inputs; 4 digital outputs.
- Can rescale information into engineering units for your own programming.
- Can control up to 4 devices such as alarms and actuators.

- Sample software examples included on disc.
- Compact—only 8 $\frac{5}{8}$ " x 8 $\frac{5}{8}$ " x 2".

And there's more!

Quasitronics has specialized in interfaces for over a decade. The Q-3024 is just the first in a new and complete line of state-of-the-art interfaces. It's ready now for immediate shipment from stock.

We'll be adding other interfaces soon. If you'd like to learn more about Quasitronics, the Q-3024, and our expanding line of interfaces, call Chuck Jones, collect, or write to the address below. Dealer inquiries are most welcome.

*List price \$495.00 each (plus shipping). Quantity discounts available.



211 Vandale Drive, Houston, PA 15342 • Telephone 1-800/245-4192 Telex 81-2550

ing edges of the square wave. Playback degrades the wave even further. Fortunately, the Model 100 has a certain amount of play in its definition of a square wave, so the wave it receives from the cassette player usually passes inspection and is accepted as valid data.

However, a misaligned tape head, motor speed variation, perhaps even daily temperature changes affecting

the size of the tape, will degrade the wave shape just enough to make the computer reject the signal and abort the load.

And that's where signal conditioners come in, they take the signal from the tape player and generate a new square wave for each incoming square or sine wave. In effect, the conditioner touches up each blip to an acceptable shape by

the computer. They do work, but they can't overcome poor quality tape, poor quality tape recorders, or motor fluctuations due to problems with the motor or power supply.

If you're interested in buying one, Lemons Tech Services, 325 N. Highway 65, P.O. Box 0429, Buffalo, MO, 65622, 417-345-7643, sells one, called The Plum, for \$39.95. ◀

```

10 CLEAR 533
   : CLS
   : PRINT TAB(15)"WORDCOUNTER"
   : MAX FILES =1
   : FILES
   : INPUT "Filename";A$
   : INPUT "Word count or Character
Count (W/C)";C$
   : IF ASC(C$)>96 THEN C$=
CHR$(ASC(C$)-32)

20 IF C$<>"W" AND C$<>"C" THEN 10
   ELSE OPEN A$ FOR INPUT AS 1
   : A=0

70 IF EOF(1) THEN CLOSE
   : PRINT @280,"Total number of
words is"A"."
   : GOSUB 190
   : RUN

80 LINE INPUT #1,A$
   : IF C$="W" THEN 110
90 A=A+LEN(A$)
   : IF LEN(A$)=0 THEN A=A+1
100 PRINT @280,USING "Character Count
= ##,###";A;
   : IF EOF(1) THEN PRINT @280,
"File Length is"A"characters."
   : GOSUB 190
   : RUN
   :
   ELSE 80

```

```

110 B=0
   : IF D=1 THEN D=0
   : IF LEFT$(A$,1)<>" " THEN A=A-1

130 IF B=255 THEN D=1
   : GOTO 70

140 C=INSTR(B+1,A$," ")
   : IF B=0 AND C=0 THEN A=A+1
   : GOTO 70

150 IF NOT C THEN D=1

160 A=A+1
   : B=C
   : PRINT @280,USING "Word Count =
#,###";A;

170 IF B<255 THEN IF MID$(A$,B+1,1)="
" THEN B=B+1
   : GOTO 170

180 IF C THEN 130
   ELSE 70

190 PRINT @281,"Press <ENTER> to
continue, M for MENU";

200 A$=INKEY$
   : IF A$="M" OR A$="m" THEN MAX
FILES =0
   : MENU
   ELSE IF A$<>CHR$(13) THEN 200
   ELSE RETURN

```

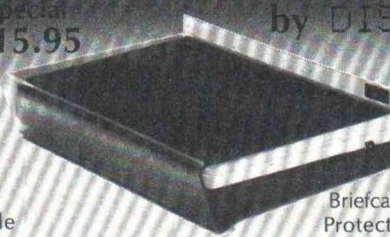
PORTABLE COMPUTER DESK TOP STAND

DUAL PURPOSE

THE POCO STAND

Special
\$15.95

by DISKUS™



Improves Viewing and Typing Angle

Briefcase Portable
Protects Keyboard
while carrying

Mail Check or Money Order to: DISKUS PRODUCTS 6003 Bandini Blvd., Los Angeles, CA 90040. VISA or M/C call (213) 726-3088 The POCO STAND \$15.95 plus \$2.00 each unit Shipping & Handling — CA residents add 6.5% sales tax. Patent Pending. ©1983 DISKUS PRODUCTS For RUSH Delivery add \$2.00 extra — U.P.S. Blue Label

BOTTOM LINE

BILL WALTERS



WHO REALLY NEEDS A 16-BIT COMPUTER TO TAKE ON THE ROAD?

Are 16-bit portable computers *really* necessary?

Here's my candidate for the most often asked question award:

"Hey Bill, you're familiar with all this computer stuff, right?"

My head nods up and down as I brace for the second part of the question. It doesn't take a clairvoyant to know what's going to be said next.

"Great! Well then, what computer should I buy?"

With a deep sigh I ask, tenuously, "What are you going to *do* with it?"

The look I get makes me feel like I'd asked this Texan his checking account balance, the size of his poke, and his family income, all at the same time.

"Whut! (remember, this is Texas) Whazzit matter?"

BUSINESS OR PLEASURE. "Will it be used for business or pleasure?"

"At home and for a small business," is the usual answer and this time was no exception. I will spare you the details of the exchanges which followed; you probably can guess.

Of course this particular conversation was fueled by a participant who immediately chimed in: "You *must* get a Whizz-Bang 101. It's got a 16-bit chip with 256K bytes of memory; dual, half-height, five-and-a-quarter-inch disk drives; a nine-inch amber CRT; and sports a blue racing stripe. Man, 16 bits is where it's at!"

The first fellow agreed: 16 bits was definitely the way to go.

I asked if he had considered a less expensive machine, then asked him some questions. Based on his answers, I indi-

cated a less expensive machine could serve his needs now and in the future.

AND SOFTWARE? I added, "Software for the inexpensive machine is readily available and is inexpensive. Do you realize what a spreadsheet program costs for your 16-bit Whizz-Bang 101?"

"Nope."

"Try \$495 on for size."

The gags and sputters that followed told me all I needed to know.

The object of this story is unless you have a legitimate business reason, the 16-bit world is a bit pricey — especially in the world of portable computers. If you have a real need for it, by all means go to 16 bits. But, what *are* real needs?

As a businessman, I'm forever constrained by one priceless commodity: time. If I waste it, I can never recoup the expense.



THE IDEAL. Ideally, my portable should be all I need for everything I do. But we don't live in an ideal world. So, I'm forced to use a portable computer when I'm out and a desktop system when I'm not.

I don't want to think of the time I've wasted shuffling data between the two.

Then there's the issue of different software.

And with my two computers, even the keyboard layouts are different — and the two computers are from the same manufacturer!

Few businesspersons are willing to tolerate such time wasters. Those that do, do so because want to be on the leading edge of technology.

SIXTEEN BITS. Several companies have announced 16-bit portable computers; some are delivering. But I wouldn't hold my breath that they will run existing 16-bit MS-DOS software.

Sixteen-line-by-80-character liquid crystal displays have a different dot resolution than the graphics in standard MS-DOS programs.

Next on the list is the keyboard. It's tough to squeeze 96 keys on a portable and keep it portable!

Memory is easy to solve — if you're willing to spend the money! Just before I left Radio Shack, I was quoted prices resulting in a retail price of \$500 for 64K bytes of CMOS memory. That's \$2000 for 256K before you tack anything else on.

But money isn't a prime consideration when you're talking about a tool to improve your performance in business. Remember, if you're using your computer for mostly pleasure and perhaps a little business, then the question takes on an entirely different tone.

FALSE REASONING. However, even for business, until a portable *really* matches the MS-DOS environment, the "I want it because it runs all the same software" argument is a false one.

And don't get your hopes up for 64K anytime soon. Remember, manufacturers are constantly pricing and playing "what-if" to be able to provide new products

All in all, my Model 100 8-bit system will do quite nicely for quite a while, thank you. ◀

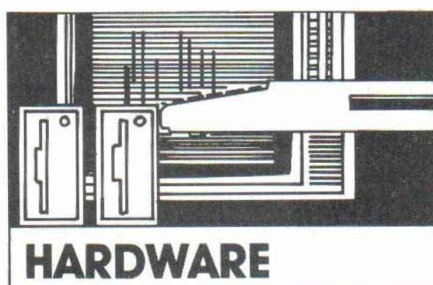
RUBBER BAND PLAYS SILENTLY ON MODEL 100

The clickity-clack of computer keys has often been cited as annoying others. Armed with something as simple as rubber bands, you can make your 100 more acceptable to polite society.

By T. ALLAN TRICK

If you've ever been in a classroom or meeting taking notes on your Model 100, perhaps you've experienced unfriendly glances cast your way. To many, the noise of keytapping is bothersome. Let me show you an easy way to silence your computer's keyboard.

The process described here won't affect the warranty on your computer, since the back cover isn't removed. All you'll be doing is removing the key caps. And with just a little care, it's virtually impossible to damage your machine.



UNLIKELY SOURCE. The main ingredient, although unusual, shouldn't be too hard to find. Remember those tiny rubber bands you or your kids used while wearing orthodontic braces?



Photo 1.

Well, a new use for them has been found, one the dental supply industry probably never dreamed of.

If you ask your local dentist or orthodontist for a few "seal" bags, he'll most likely be glad to let you have them. (His cost is about 34 cents per bag of 50.) Hopefully he'll be amused and pleased to help you once he finds out why you want them.

You'll need about 130 of these seal rubber bands, so named because the bag has a drawing of a seal to designate a particular size (size 3, medium, 1/4-inch by 3-ounces). The product is referred to as zoo bags since each size features a different animal. A bag consists of 50 rubber bands, so you'll need three of them.

BUY BULK. Seal bags also can be bought directly from a supplier. The only hitch is you have to buy them in large quantities. Still, it'll cost under \$20 to buy in bulk and if a few other people in your local user group would like to get some, it might make sense to contact the company listed below to do so.

If rubber bands aren't available from an orthodontist, they can be ordered in quantities of 5000 (a master pouch contains 100 bags of 50 each). Order catalog number 630-0021, Surgical Latex Intraoral Elastics, Seal Zoo Bag, 3C 1/4-inch medium. The cost is \$16.80, plus \$2 postage and handling. The supplier is Ormco, 1332 South Lone Hill Ave., Glendora, CA 91740, 800-854-1741. California residents call 213-331-3335.

There's also at least one company offering a similar solution to quiet your keys. Micro Computer Services, P.O. Box 17586, Portland, OR 97217, 503-285-7424 has a product, Quiet Key, that sells for \$4.95.

STRIPPED. The accompanying photos show a stainless steel tool being used to take off the key caps. You can use a dull dinner knife instead. A small pair of tweezers also is shown in the photos for putting the rubber bands on the key posts, but bare hands work almost as well.



Photo 1.

cap will come off easily as long as you aren't pulling at an angle (photo 2).

BAND AID. Pick up a rubber band either with a pair of tweezers or with both hands. Stretch the rubber band slightly, so it fits over the key post and place it onto the post (photo 3).

Pick up another rubber band and place it on the same post, above the first one. You can put either one or two bands on each post, although each one should have two for best results. The larger keys (enter and space bar, for example) should have three rubber bands placed on them.

The key post with two rubber bands on it looks like photo 4.

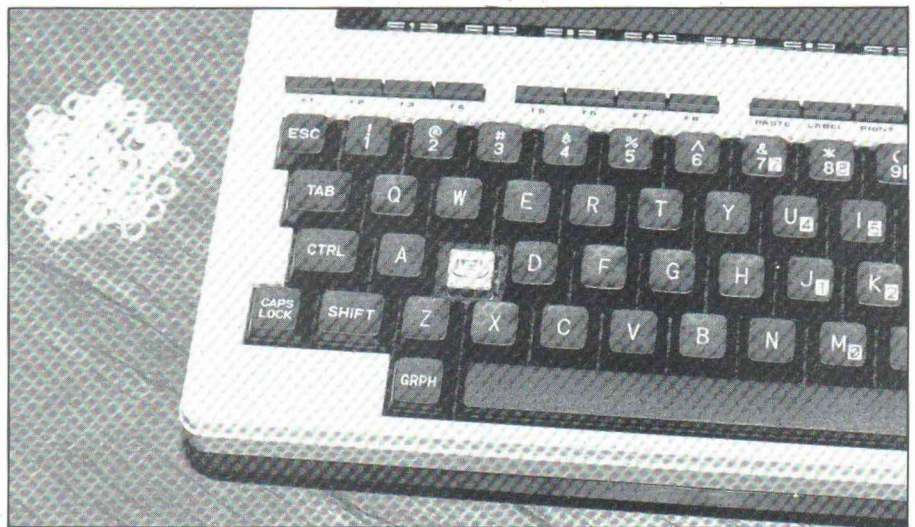


Photo 3.

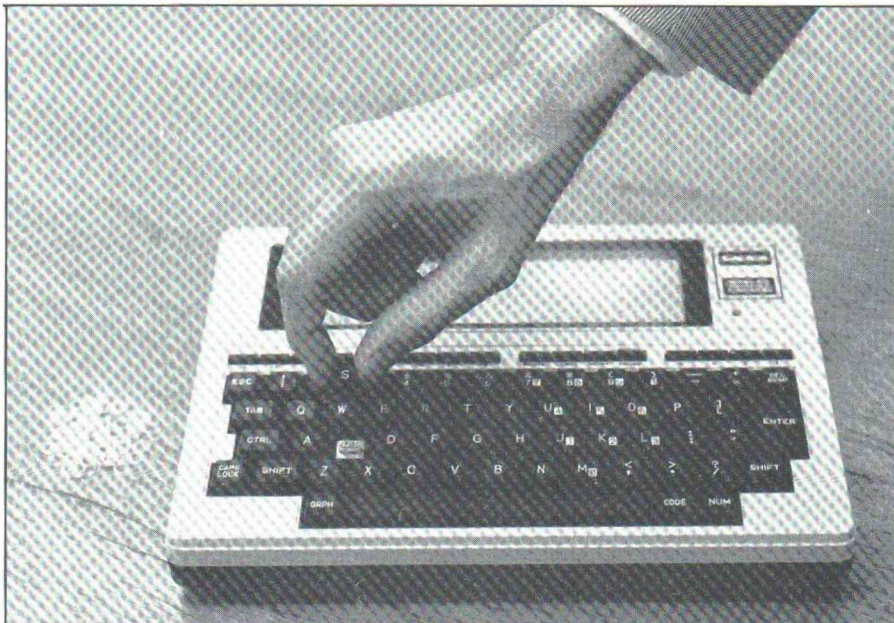


Photo 4.

First step is to turn the power off and remove each key cap one at a time (photo 1). I tried removing all of them at once, then placing on the rubber bands. However, this isn't a recommended method. One tends to forget the position of the keys when all the caps are off. When looking at all those naked posts, it's hard to remember if the plus key is above or below the brackets key!

Starting at whatever side of the keyboard you wish, remove the first key cap in the row by grasping the cap with either a tool, as mentioned above, or by pulling it off with a kitchen knife. (In the photos, we started with the S key.) It's important to pull straight up. The

SNUG FIT. Pick up the key cap with your fingers and place it back onto the post (photo 5).

Press straight down on the key cap to insure it's positioned snugly back onto the post (photo 6).

Repeat the above process on the next key and continue until all keys have been done.

SILENCE. It'll take 30 to 45 minutes to complete this process for the whole keyboard. When finished, you'll be in for a nice surprise. Your fingers will feel the difference and no longer will you get those stony stares at meetings. ◀

T. Allan Trick is a member of the Model 100 SIG on CompuServe, CIS ID 71256,757, and Office Systems Coordinator at the Christian Science Center in Boston, MA.

T-BASE: A POWERFUL RELATIONAL DB

Traveling Software's most powerful offering to date blends sophistication with ease of use.

By JOHN P. MELLO JR.

In his audio-introduction to T-Base, Traveling Software's Traveling Professor proclaims the relational data-base manager to be the "most important software ever developed for your portable, lap-sized computer." Even discounting the professor's obvious bias, he isn't far from the mark in his praise for this product.

There are several data-base managers currently marketed for the Model 100, but at this writing, T-Base is the only one with relational capabilities.

What does that mean?

Data bases are usually broken into three categories: data managers, data bases, and relational data bases.

Data managers are information storage programs. You set up "records" made up of "fields" (LAST NAME, may be one field, FIRST NAME another) and can sort and print reports based on the information in the fields.

Data bases let you do everything you can do with a data manager, but also allow you to do operations on a field. For example, a Model III data base I

CUSTOMER ORDER FILE

CUSTID	DATE	NAME	PROD	VEND NAME	QTY	PRICE	DISCOUNT	TAX	TOTAL	COMMENTS
*	*	B (cust)	*	B (prod)	*	B (prod)	C	C	C	*

CUSTOMER FILE

CustID	*
Name	*
Address	*
City/State	*
Zip	*
Phone	*
Comments	*

PRODUCT FILE

ProdID	*
VendID	*
VendName BS(vend)	
Address B(vend)	
City B(vend)	
State B(vend)	
ProdName	*
Unit Price	*
Comments	*

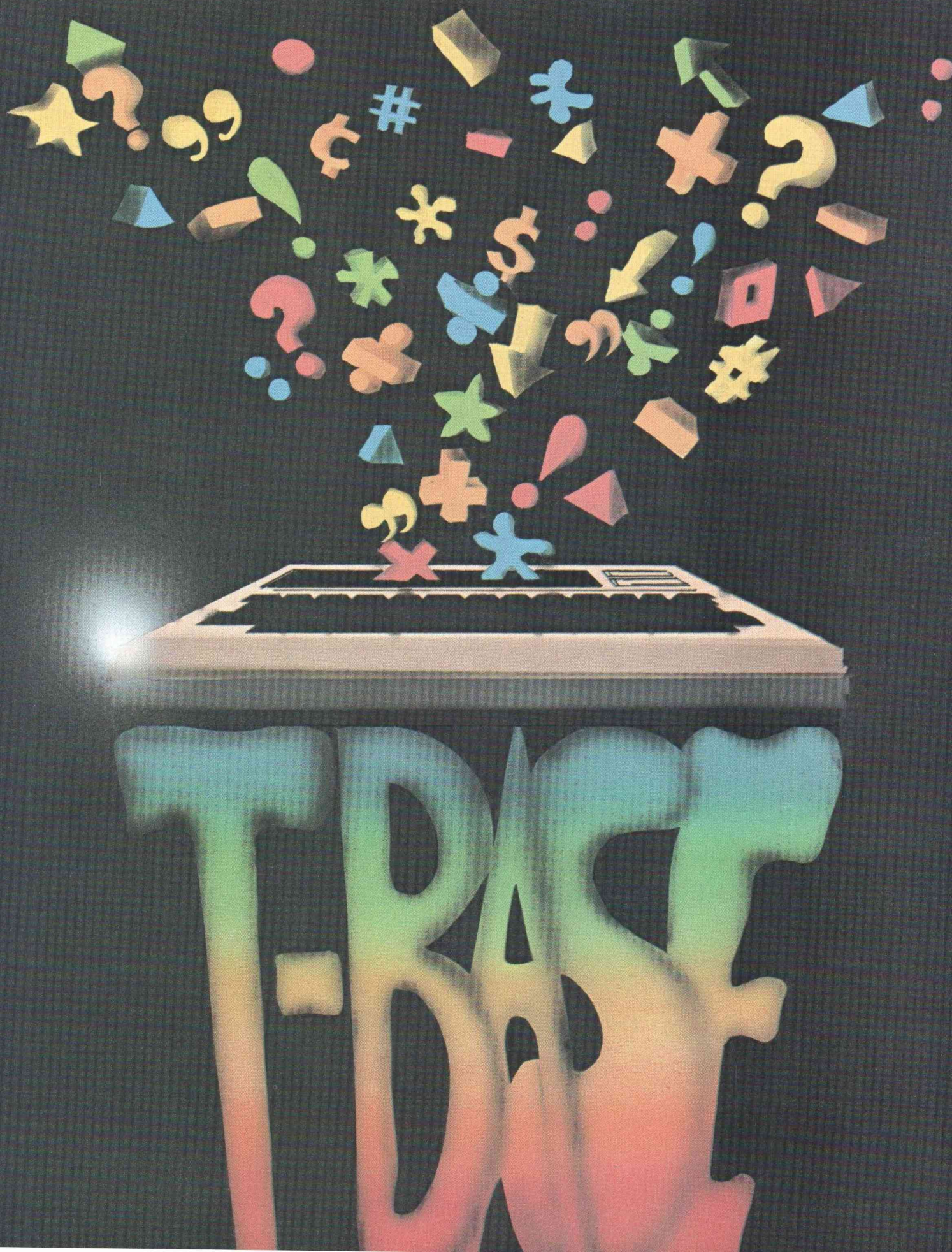
VENDOR FILE

VendID	*
VendName	*
Address	*
City	*
State	*
Zip	*

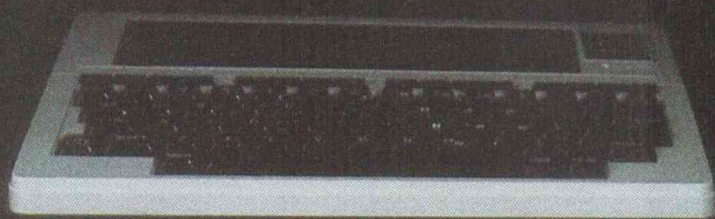
Note: All shaded areas are not physically stored in your computer's memory.

* = Data entered
B = Data borrowed
C = Data calculated

Figure 1. Data Base Design



400K ON A SINGLE SIDE...
RECHARGES IN ONE HOUR, THOUSANDS OF
PAGES TRANSFERRED BETWEEN CHARGES.



Uses the main menu concept. You see the disk directory instantly, arranged on your M-100 screen like your main menu. Just move the widebar cursor and transfer files with a function key.

Uses SONY microfloppy diskettes, that have a rigid plastic casing and a metal core. They're tough and nonflexible. You can carry several in a shirt pocket without damage. 10 of these in your briefcase and you've got 4 megabytes.

Drive weighs only 3 lbs. and it works directly from the 110 outlet and recharges at the same time. Also you can operate it or recharge it from your automobile cigarette lighter.

Machine code programs, BASIC programs and documents all are saved and retrieved with no protocol - instantly, ready to run.

Sounds a little expensive, but portability in a disk drive is an engineering feat. It's worth the money to have the power and freedom that this Portable Disk Drive can bring you.

The Disk Drive comes with \$300⁰⁰ worth of FREE SOFTWARE! (six programs) including a Random Access Mailing List Database.



Portable Disk Drive
FOR THE MODEL 100

\$599⁰⁰

VISA/MASTERCARD/COD

PORTABLE COMPUTER SUPPORT GROUP

11035 Harry Hines Blvd. No. 207, Dallas, Tx. 75229

1st with software for the Model 100

CALL 1-214-351-0564

Circle No. 25 on Reader Service Card

Manufactured by PERCOM Data Corporation. ROM based operating system and access software by Portable Computer Support Group. Mastercard/Visa/COD. PCSG provides hotline software support for Model-100. Call 1-214-351-0564. Available now directly from Portable Computer Support Group.

use to generate monthly reports for payments to authors takes all the numbers in the payment field and provides me with a grand total for the month.

A relational data base goes a step further. It lets you borrow information from fields in other data bases and perform complex operations on that information in yet another data base.

WHAT YOU GET. The T-Base package comes with three programs (TBASE, TB-RPT, and MEMMGR), four sample data bases, a 200-plus page manual, and an audio overview of the program by the Traveling Professor.

TBASE and TB-RPT are Basic programs with machine-language subroutines. This approach, according to Traveling Software, allows the programs to have the advantages of machine-language software without its perils.

MEMMGR is a valuable utility program. It displays the files in your 100 and their lengths. It lets you rename or kill them. And it lets you make them visible or invisible.

I used MEMMGR to gauge the file lengths of the T-Base package after loading it into a 32K Model 100. The results are in table 1.

TBASE. You start using T-Base by designing your data bases. There's always the temptation to dive into a new piece of software. If you use that approach with T-Base, you'll be over your head before you know it. Designing a chart (see figure 1) will be a tremendous aid to you when using this program.

When you've sketched out what you want in your data base, enter TEXT and create a "screen" file.

There are three kinds of files used by T-Base. When naming the files, you choose four letters and the last two designate the file type, *S for screen file, *R for report file, and *D for data file. A typical screen file name would be CUST*S.DO.

Because you can use only four letters, your file names can appear cryptic at times. Traveling Software recommends printing your screen files when you're done with them. I concur. A printer is almost a necessary adjunct to this program.

Once in TEXT, a screen file is simple to create. However, all capitalization, punctuation, and syntax in the file must be perfect, or the screen won't work.

BASEBALL DATA. To test T-Base, I created three screen files containing data on the top 25 hitters in the American and National Leagues. The first screen file I created was PLAY*S (see exhibit 1).

The first line of the file defines the number of fields in each record (5), then names the fields. This line can't be longer than five LCD lines. The field names must be in capital letters.

The succeeding lines in the screen file describe the fields. In PLAY*S,

field one is "Name:" and is 20 characters long. This first field is very important because it individualizes the records in the data base for later manipulation.

I chose to make this "key" field ball-players' names. As records are created with this screen, they're stored in alphabetical order. If this key field were a number, the records would be stored in numerical order.

Field lengths plus field labels may
continued on page 48

**FOR THE RADIO SHACK MODEL 100
OLIVETTI M10
NEC PC-8201A**



**8K
MEMORY
MODULES**

*Designed
for the
Briefcase
Portables*

- ★ Low Power CMOS Design
- ★ Simple Installation (Instructions Included)
- ★ 30 Day Satisfaction Guaranteed or Your Money Back
- ★ 1 Year Warranty
- ★ Memory Test Program Available — Only \$15⁰⁰
- ★ Prompt, Next Day Shipment — Via UPS
(Shipping & Handling Included in Price)

SPECIAL SHIPPING
Free UPS surface within USA — Add \$4.00 for UPS 2 day Air — Add \$7.00 for
Canada — \$15.00 for all other Foreign delivery.

Dealer Inquiries Welcome

\$59⁹⁵

8Kx8
CMOS/RAM

— Special Offer —
(with purchase of a memory module)
No frills direct connect Modem Cable - \$9.95

PACK A PURPLE IN YOUR PORTABLE!

Purple Computing • 2068 Ventura Blvd • Camarillo, CA 93010
Toll Free (800) 732-5012 Calif Only — (805) 987-4788

☐ NEC PC-8201A
 ☐ OLIVETTI M10
 ☐ RADIO SHACK MODEL 100

Product	Quantity	Cost	
8K Memory Module	_____	\$ _____	Price Includes postage & handling. Shipped from stock.
Modem Cable	_____	\$ _____	
	_____	\$ _____	
		CA Residents only, 6% tax	
		Total Cost:	\$ _____

☐ Check ☐ Money Order ☐ VISA
☐ American Express ☐ Master Card

Acc't. # _____ Exp. _____
 Signature _____

Name _____
 Address _____
 City _____

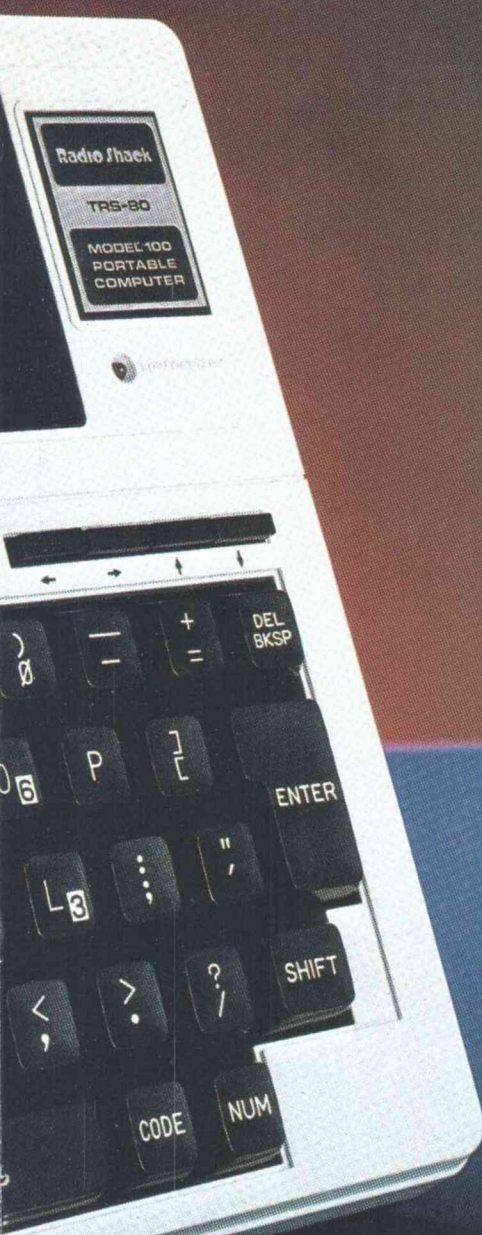
State _____ Zip _____

New Low Prices on TRS-80® Model 100

America's #1 Portable Computer



Computer Is Now More Affordable!



Radio Shack's TRS-80® Model 100 Comes With Five Built-In Programs!

- Personal Word Processor
- Appointment Scheduler
- Address/Phone Directory
- Telephone Auto-Dialer
- BASIC Programming Language

Since its introduction, the TRS-80 Model 100 has become the most highly-acclaimed lap-



size computer ever. Why? Because it's a true portable that also includes a built-in modem, and it works on batteries or with an optional AC adapter. Best of all, you can

now get your own Model 100 at up to 25% less than last year!

Ready to Use—No Extras Required

Turn on Model 100 and select a program listed on the eight-line by 40-character display. Model



100's full-size typewriter keyboard makes word processing easy. And you're never far from your office with Model 100's self-contained communications program and modem. If you're in the field, it's easy to transfer data between your Model 100 and your office computer by phone. You can also access the huge data bases of national information services with just a few keystrokes.

Use It As Your Desktop Computer, Too

With Model 100's RS-232C interface, you can share files directly with other computers. Model 100 also comes standard with parallel printer and bar code interfaces. Add a recorder and use cassette software. And you can expand with disk storage and a standard-size video display.




Available Nationwide

See what all the excitement is about. Get your own TRS-80 Model 100 at the Radio Shack Computer Center, participating store or dealer nearest you.


8K Model 100
Was \$799.00
in Cat. RSC-11

59900
26-3801

AS LOW AS
 **\$35 PER MONTH**

24K Model 100
Was \$999.00
in Cat. RSC-11

79900
26-3802

AS LOW AS
 **\$45 PER MONTH**

Radio Shack®
The Technology Store™

A DIVISION OF TANDY CORPORATION

Send me a free TRS-80 Catalog today.

Mail To: Radio Shack, Dept. 85-A-222
300 One Tandy Center, Fort Worth, Texas 76102

NAME _____
COMPANY _____
ADDRESS _____
CITY _____
STATE _____ ZIP _____
TELEPHONE _____

Prices apply at participating Radio Shack stores and dealers. Microsoft is a registered trademark of Microsoft, Inc.



SOLLERS

ARCHAEOLOGISTS TRADE FEDORA AND LEATHER FOR 100

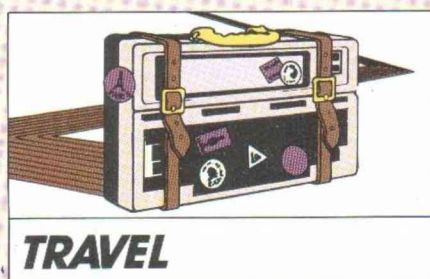
The romantic days of searching for an ancient city with a shovel and bullwhip are gone. Now the searching's done with a shovel and microcomputer.

by DANIELA BUIA QUINN

Going on an archaeological dig is an exciting prospect — all the more so when the investigative site is thousands of miles from home in a totally different part of the world. One thing you certainly don't expect to find in the middle of the Syrian desert are lap-sized computers.

The Joint American Expedition to Terqa was to dig for eight weeks at a 5000-year-old site on the banks of the Euphrates River in eastern Syria. Headed by Professor Giorgio Buccellati of the University of California at Los Angeles and Professor Marilyn Kelly-Buccellati of California State University at Los Angeles, the team consisted of professional staff archaeologists and included a number of graduate students, like myself, from the history and archaeology departments specializing in the Ancient Near East.

Excavating in the Syrian desert on an archaeological dig isn't exactly like digging up weeds in your backyard on a Sunday afternoon. And despite the jokes among friends about "Indiana" Louise or "Indiana" Mark, 99 percent of archaeological work today requires painstaking digging and concentration and most important of all, detailed documentary recording of information. The romantic days of searching for an ancient city with just a shovel and a bullwhip are long gone. All of us recognized that!



TANDY IN DAMASCUS. We knew the 100 was going to be an important component in our daily schedule. We'd spent the better part of three months learning a coding system devised for the types of elements and artifacts an excavation might produce. Ranging from the largest architectural complex to the smallest bead, Dr. Buccellati and his associates had worked up a series of recording forms to make sure all pertinent information on each item was properly collected.

Landing in Damascus after a long flight with what seemed like 700 pounds of luggage should have been exhausting, but our adrenaline was booming. We got to our hotel in the old quarter of the city and were greeted by the sounds of midnight prayers being chanted from the city's oldest Islamic mosque.

In the morning, after a sleepless few hours, we had time for a little sightseeing before taking the cross-country bus

ride to Terqa. On the way to the National Museum, with its priceless collection of artifacts we'd spent years studying in books, we came right up against a Radio Shack store! No wonder the 100 had been selected. Not only was it small, compact, and portable, but if anything went wrong, we always could get help from the Tandy store in Damascus.

MODEL 100 IN THE TELL. We had our first look at Terqa on a wonderful sunny May morning. The river meandered right past the bottom of the site (called a tell). A quick tour of the housing compound gave us a clear indication of priorities. Our rooms were in mud-brick houses, clean but definitely spartan in amenities. The "computer" room, however, had *two* fans and strict instructions about keeping it as clean and orderly as possible. Instructions, which I might add, weren't too easy to keep.

The 100 (with 32K), the flatbed multi-color plotter (Model FP 215) and the standard cassette recorder were all set up in this room, along with two hanging light bulbs, electrical transformers, and a power stabilizer.

Our home was in Ashara, a town situated on about half of the ancient city. The city receives its electricity from the Tabqa Dam project upriver. But in periods of peak use, the national system cuts off and the trusty local gen-



THANKS TO COMPUSEVE'S CB SIMULATOR, "DIGITAL FOX" ACCESSED "DATA HARI" AND PROCEEDED TO AN "ALTARED" STATE.

The CB Simulator, where CompuServe Subscribers can Access Friends and Influence People on 72 Different Channels.

Just pick your handle and get on line. From math to matrimony, there's always someone out there who speaks your language. Friends from all over the U.S. and Canada are at it 24 hours a day. Talking tech or just having fun. And if you've got a secret, just use the CB Scrambler.

That'll fool the "lurkers," those CB "see it alls" who get their kicks by watching. Or you can always use the private talk mode for guaranteed one-to-one conversation.

The CB Simulator is just one of CompuServe's many electronic communications options that include a National Bulletin Board, Professional Forums and Electronic Mail. Plus, there's a world of on-line information and entertainment all for the price of a local phone call plus connect time.

You can access CompuServe with almost any computer and modem, terminal or communicating word processor.

To receive your illustrated guide to the CompuServe Information Service and learn how to subscribe, call or contact:

CompuServe

Consumer Information Service, P.O. Box 20212
5000 Arlington Centre Blvd., Columbus, OH 43220

800-848-8199

In Ohio call 614-457-0802

An H&R Block Company

erator takes over, sometimes reluctantly. At least twice a day this change-over happened, so we learned to be careful when on the computer and became very definite about making back-up copies of everything.

The city of Terqa dates back to 3000 B.C., but this year we'd be digging on a level of the city belonging to the Old Babylonian period, about 1700 B.C. Unlike Egypt, the citizens of our city didn't have stone to build with, and used sun-dried mud bricks to construct their homes, temples, and administrative buildings. Pavements were of beaten earth, sometimes coated with a thin layer of plaster. It was like learning to find mud in mud . . . and backwards to boot!

EXHILARATING EXHAUSTION. The daily routine of our excavation ran something like this:

Up at 5 a.m., brush teeth in the sink in the courtyard, and get to breakfast before it was all gone. Breakfast consisted of hot cereal, Syrian bread, fresh yogurt, hardboiled eggs, and hot tea.

Onward to the site and ready to dig at 6 a.m. Dig until 10 a.m.

Twenty-minute "faidos" break when we stretched our aching backs and broken knees and wolfed down a second breakfast of more eggs, bread, fruit, and tea.

Back to work under the Syrian sun (120 degrees in the shade was the norm) until 2 p.m.

Dinner, the main meal of the day was not until 2:30 p.m.; just enough time to take a cold shower or at least get some of the dirt off.

After dinner, clean and sharpen tools, begin writing up the daily journal and rewrite notes. Lectures from the staff and visiting archaeologists scheduled about 5 p.m. (when it starts to cool off) on methodology, technique, or analysis.

A light supper of soup, fruit, desserts, and tea about 7 p.m., and then back to record-keeping and finally sleep.

Fifteen- to 16-hour days, six days a week, with Fridays off for sightseeing, catching up, or resting.

But don't be fooled by either the pace, hours, dirt, or heat — we loved every minute of it! We first-time mud-puppies were finally doing what we'd trained to do: We were on our first excavation. The pace made us feel productive as well as exhausted. By the

time the season was over, some of us didn't want to leave!

Nevertheless, we got the picture early. For every hour of excavating on the tell, there'd be from one to two hours of documentation upkeep. There was no doubt as to the usefulness of having computers in the field. The gross amount of data about a site we uncover is quite a lot, and its recording takes on two distinct forms.

STRATIGRAPHY. The first and pri-

mary concern is Stratigraphy. That means the order (deposition) and way (emplacement) things came to be buried in the ground, viewed in layers.

But people never lived in horizontal layers like a cake, and walls are vertical and so are drains, not to mention the lovely rodent holes that run through every layer of a site and stir the dirt up.

As you dig, too, you remove what's above to see what's below, so double-checking a sequence becomes impossible. The moment of noticing the differ-

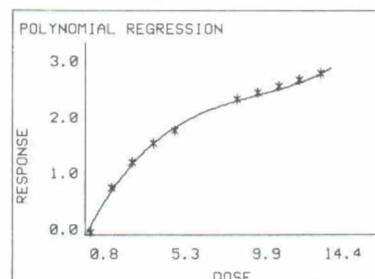
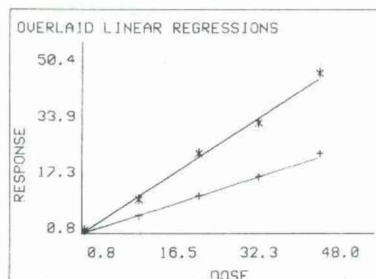
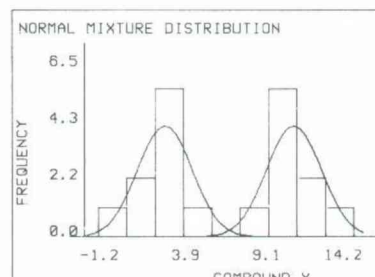
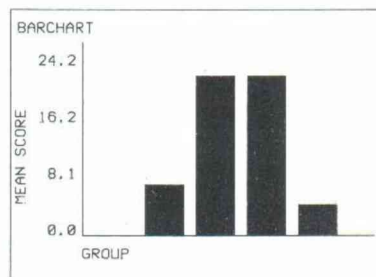
The Portable Statistician

Software package to make your Radio Shack Model 100 and CGP115 color plotter into a portable statistics/graphics workstation.

Features:

- Descriptive statistics
- t-statistics
- One-way, two-way ANOVA
- Repeated measures ANOVA
- Linear regression
- Nonlinear regression
- Multiple regression
- Chi-square
- Mixture analysis
- Histograms
- Scattergrams
- Barcharts
- Line charts
- Linear plots
- Nonlinear plots
- Normal dist plot
- FISHER's exact test
- YATES correction

ONLY
\$99⁰⁰



Also available for IBM PC and XT

TRS-80 is a registered trademark of Tandy Corporation

IBM is a registered trademark of International Business Machines Corporation

Works with 32k or 24k versions

Statware

7413 Lake Street
Morton Grove, Illinois 60053
312/248-8836

ences in soil texture, compaction, or color signaling the appearance of two "somethings" is the key stratigraphic moment, and that's the moment that has to be carefully documented.

Our stratigraphic recording approach is the converse of an architect's. We both deal with the needs of an individual or a society and the solutions to the organization of space; we just approach the problem differently. The architect knows the needs of a living client and designs a solution to fit those needs. An archaeologist can see only the results and has to discover the original needs of an ancient civilization.

TYPOLGY. The second type of information we record is Typological, those characteristics of an object making it similar or different from another object of the same general class. That information tells the quantity and distribution of a specific type of object over a geographical area and through a period of time. The differences or similarities traced sometimes give indications of what the object was used for (function) and whether or not that class or type of object had some special significance in a given cultural context, either for an individual or society.

All of this information has to be accurately recorded in a file — on the spot — especially the stratigraphic information. In many instances, it's the only thing brought back for further analysis, since the architecture stays in the ground or is destroyed when excavated and the objects belong to the country's heritage so cannot be exported.

Along with this mass of data, graphics also are essential. Photographs are taken from every conceivable angle to document each step of the excavation. Daily floorplans and sketches are even

more important since they're based directly on the digital information.

SYSTEMATIC UNITS. An archaeological site is divided into systematic and workable size units. In our case, the units were 10 meters square. As an item was uncovered, its location had to be measured from three control points, two horizontal and one vertical. From these the item's absolute position in space was calculated by using standard surveying techniques. For each item, then, we had at least three measurements or ties and each set of three was a relay point.

For complex elements like walls we had more than three ties. This was be-



cause walls are hardly ever straight and have been often reused, patched, reinforced, and rebuilt through the centuries. Each modification to the core structure had to be identified separately. All the relays were maintained in our volumetric logs and added to the stratigraphic and typological information gathered.

Daily drawings were done of the elements we had found, and each drawing became more complex than the one done the day before. But each person draws differently, so errors crept in,

and with errors, major distortions from the numerical data. It became imperative the drawings be consistent and precise for each unit. The features of one excavation unit had to link properly with the features of the adjacent unit. And as more information was obtained, a clearer picture of the layout of the building or city was possible by plotting all the units together.

PLOT PARTNER. Since each unit was dug at a different place, depending on the complexity of the items found in any one square, an area floorplan couldn't be plotted each day. Only a unit floorplan could be constructed from the digitized relays. A simple but precise way of translating the long sets of volumetric-log relays (the digital data) into graphic representations reflecting the true volumetric and three-dimensional character of each stratigraphic level was needed.

So, each one of us became attached to the 100 as an essential partner in the recording system. Each day, (after scrambling to see who'd get the 100 first) we entered our journals, indices, and records, creating standard text files per excavation unit.

In these we'd write our step-by-step records of where and what was uncovered that day, why we decided to focus on some area of the unit and what our theories were regarding the elements found. In a separate text file, the coordinates derived from the ties and relays taken for each structure or artifact were entered.

AFPP. An Archaeological Field Plotting Program (AFPP) was developed in Basic. (The program, "Architectural Floor Plans, Digital Plotting", was published and copyrighted by Giorgio Buc-

NavPin

for Flight Planning

- Creates a complete Navigation Log
- Saves the entire Route of Flight for future flights. Just enter new weather and performance data.
- Provides all the standard Navigation Data.
- Compensates for Climbs and Descents.
- Can accept nautical or statute measurements.
- Has many error prevention features.
- Computes the effects of Density Altitude, Wind Drift and Magnetic Variation on True Airspeed, Ground Speed, Headings, ETA's and ETE's.



The Preble NavComp

Two Aviation Programs in one package!

The Preble NavComp is only \$49.95 — Shipping and Handling \$1.50 to U.S. and Canada — \$5.00 to other foreign points. Visa and MasterCard accepted. A TRS80 Model 100 with at least 16K is required.

- The Preble NavComp: Self-prompting and user friendly!
- The Preble NavComp: Created by a Certificated Flight Instructor for pilots who demand excellence!
- The Preble NavComp And the TRS80 Model 100: An unprecedented partnership made FOR the HEAVENS.

NavAid

for Realtime Navigation

- Tracks your flight in Real Time.
- Lets you modify Flight Data as necessary.
- Has incredible graphic displays of Position, Fuel Burn and More!
- Can update position using VOR intersections.
- Has Cursor selectable menu of functions.
- Can be turned off and on in mid-flight without loss of data.
- Has Interrupt Function Keys for check point passage, VOR Intersection Display, Incremental Position Update, Ground Speed Update and Position Update by VOR Reference!

Order From: Dr. Preble's Programs; 6540 Outer Loop; Louisville, KY 40228 (502) 966-8281

cellati and Oliver Rouault in their article *Terqa Preliminary Reports No. 12: Digital Plotting of Archaeological Floor Plans*, Undena Publications, P.O. Box 97, Malibu, CA 90265.)

By adding move and draw commands to the sets of coordinates, the AFPP drives the plotter and graphically draws a representation of each unit each day. Errors show up quickly, so math can be easily doublechecked or measurements retaken the same day.

The text files change, of course, as the complexity of the combinations of walls, floors, burials, pits, and objects in the units become more numerous. But with the AFPP, it's easier to determine which of those elements and combinations belongs together functionally or for a given period of time.

The features from the previous day are drawn in one color and the finds of the current day in another. The floorplans are never static; elements change, enlarge, and are recombined as more information is added to the files. The use of the 100 and the plotter takes on the dimensions of an adventure itself, as the pictures produced clarify what's being found in the dirt.

INVALUABLE TOOL. Eventually, enough information and data is gathered to sort the elements by strata, linking up units and the items in them to the same chronological periods. So far, 10 such separate strata have been defined, and the plotting within each has become very specific.

By manipulating the text files, we can draw, in any given unit, the features we want and know the result is an accurate representation of spatial realities. For instance, we can plot all the Medieval burials and see exactly how they interface with the Old Baby-

lonian walls beneath. Or, we can plot the distribution of artifacts on the floors to notice functional centers of use or production in a given period.

The ability to do this type of plotting in the field is inestimable. It not only documents, but the results of the data sorts become part of the informational base from which the excavators make their decisions for the work plan of the following day.

As graduate students, the entire experience at Terqa was exciting, but the application of microcomputer workstations in the field was extraordinary. What had seemed like impossible masses of data needing to be noticed and recorded became manageable.



UNDAUNTED. Our attentions were focused and became increasingly precise. Our observation of details during the excavation process improved and could be verified and corrected easily. With just a little practice, we learned to manipulate the data so the analysis of the material became clearer and the stratigraphic relationships understandable. We could spot where we needed more information, where the sequences were still unclear, and work on those areas the next day.

The season at Terqa had been an ex-

periment using the 100 in the field. Despite the dust, high heat, spiders and scorpions, and grimy hands of inexperienced graduate students who used it for hours upon end, the equipment worked beautifully.

Work on the data base continues now that we're back at the University. The AFPP is serving as the starting point for a whole realm of new approaches to computer processing in Near Eastern archaeology.

A brand-new journal has been inaugurated, appropriately called, *Computer Aided Research in Near Eastern Studies* (CARNES), published by Undena Publications, Malibu, CA, which featured the AFPP program in its premiere issue.

Further, the program is undergoing some refinements and we're reworking the encoding manual to make all of the data collection formats consistent within the overall computerized system.

FUTURE HISTORY TOOL. All of us are becoming more comfortable with the equipment. Most have begun to think of microcomputers as essential parts of our field kits, along with our digging trowels and brushes. A fair number have purchased their own home computers and have begun exploring additional applications in archaeological research, including dissertation projects.

Microcomputers and ancient Terqa are aspects of two civilizations spanning 5000 years. Today's technology is helping to discover the secrets of yesterday and both combine to enhance tomorrow. Bringing the two worlds together may no longer seem so unusual in the face of today's high-powered research setting, but their combined impact in the field of archaeology is definitely going to be spectacular! ◀

MODEL 100 SIG ON COMPU SERVE

Log on to
the MODEL 100
Special Interest Group
on CompuServe and
gain access to more
than 400 FREE programs!

Spreadsheets,
Printing, Diaries,
Utilities, Programing,
Formatters, and more! Just
log on CompuServe and
GO PCS-154 at the prompt.

OLIVETTI M10 Model 100 & NEC 8201

PORTABLE SOFTWARE

AutoPen \$29.50

Powerful compact (2.5K) easy to use word processing. Use standard formats or 22 imbedded commands. Many features found in larger desktop programs including buffered keyboard input. Customize for your printer. Parallel or serial output.

AutoPen N&A . \$39.50

Expanded AutoPen for merging names, addresses and salutations into form letters from N&A file. Print envelopes and labels. Includes short version.

AutoPad \$39.50

Easy to use 26 by 99 spreadsheet in only 5.4K. Flexible screen and printer format with titles and footnotes. Many convenience features including sort and special math and financial functions.

BOOK \$29.50

Convenient single entry bookkeeping system for self employed and small businesses using Schedule C accounts. Summary and detailed printer output.

TRIP \$29.50

Expense record and trip report log using 8 accounts and text notes. Special computational features. Screen review and formatted printer output.

TFILE \$29.50

Tape file management utility system for auto saving, deleting, and loading of selected files. Computes length and produces annotated tape directory with printer output for records.

CHECK \$29.50

Checking account, balance and detailed records of each transaction. Screen review and formatted printer output.

CALC \$14.50

Simple 5 function memory calculator.

Add \$2.00 Mailing and Handling

CHATTANOOGA SYSTEMS ASSOCIATES

Post Office Box 22261
Chattanooga, TN 37422
Phone: (615) 892-2339

T-BASE

continued from page 39

not exceed 29 characters, and the field lengths and labels in a record are limited to 255 characters.

In *PLAY*S*, *TM* is a "field descriptor" meaning the field is text and must be filled in before proceeding to the next field.

T-Base has a primary and secondary set of descriptors (see table 2).

If the information in a field won't be used for calculations, it should be made a text (T) field. This isn't limited to alpha characters. Zip codes, order numbers, and customer ids consist of numbers, but would still be designated text fields.

In *PLAY*S*, I made my text fields mandatory (M), because I knew I'd be borrowing (B) them later, and I wanted to make sure there'd be something there to borrow.

When creating my screen files, one drawback I found was T-Bases's inability to make calculations beyond two decimal places. Batting averages and slugging percentages in baseball have three decimal places.

This drawback also reduced the authenticity of the data base because T-Base was unable to round off a batting average. For example, a player's average would be published as .265, but in T-Base, it would be 264.

DATA ENTRY. Once I created the screen files for my data bases, I entered T-Base. The program asked me to load a screen file and presented me with the display in exhibit 2.

I entered *play*s* and received a nasty beep. The program wanted the file name in uppercase letters. This proved vexing whenever I used T-Base and seemed to be an unnecessary "feature" — especially since other Traveling Software programs I've used have wisely omitted it.

When T-Base displayed my screen, the field label appeared in normal video (black on green) and the field length in blocks of reverse video (green on black). A facsimile of the screen appears in exhibit 3.

I began entering data. On some occasions, I found the 100's screen couldn't keep up with my keystrokes. This can be distracting. Editing records is very easy, however, since all of TEXT's editing functions work while you're in T-Base.

When I filled in the last field in the record, T-Base displayed a new set of

function key options for me (see exhibit 4):

Sav lets you save the current record to a data file;

Del lets you delete the current record from its data file;

Pre lets you look at the previous record in the data file;

Nex lets you look at the next record in the file;

Cal lets you recalculate any data filed in the record displayed on your screen; and

End lets you end the session and return to the initial T-Base menu.

UPDATING DATA. If you have several records you want to update, you can type in a key field, press F3 (Fin), and T-Base will find the record for you. However, updating an entire data base can be clumsy.

With *PLAY*S*, I wanted to update my information every Sunday when new stats were available for the Major League's top hitters. This meant going through my data file from top to bottom changing the data in each record.

When the initial player screen was displayed, I pressed F1 and T-Base found the first record in *PLAY*D*. I modified the record, then pressed F1 (*Sav*). This returned me to the initial data entry/update screen.

Pressing F1 called up the first record again. To get the second record, I had to press F5 (*Nex*). Updating and saving this record sent me back to the initial screen, where I had to go through the entire process again. Obviously, using this method would get more and more tedious as you went through the data file.

There are quicker ways to update an entire file, but Traveling Software could have made this process easier and provide a safeguard against incorrect data entry by maintaining the second data entry/update screen after a save rather than returning to the first screen.

T-BASE REPORTER. Once I'd entered my data, I returned to the main menu. It looked similar to exhibit 5. Note a data file was created for each screen file. *PLAY*S* created *PLAY*D* and so forth.

The information appears in the data files as in exhibit 6. If a field's data is

borrowed from another data base, it appears in the data file as two consecutive commas. In the portion of PLAY*D appearing in exhibit 6, the two commas after the player's position indicates the borrowed field batting average (AVG).

I used T-Base Reporter's definition commands (see table 3) to set up the report I wanted. To create the report, I entered TEXT and set up the file RUNS*R (see exhibit 7).

Taking RUNS*R line by line:

- Line 1 tells T-Base Reporter to use the RUNS data base for its information;
- Line 2 sorts the data base by a player's team and after the report is printed, it will return the data base to its original form;
- Line 3 sets the page width to 40;
- Lines 4 and 5 establish two header lines;
- Line 6 starts column 1 at column 1 on the paper, column 2 at column 15, and column 3 at 28;
- Line 7 sets the labels for the three columns;
- Line 8 tells T-Base Reporter which fields the information is coming from

for the columns in the report;

- Line 9 sets subtotals for each team; and
- Line 10 calculates a grand total for the entire report.

While this may sound easy, it wasn't, primarily because T-Base won't sort a data base on a borrowed or calculated field. To sidestep this problem, I made RUNS*S borrow TEAM from PLAY*S and store the information in RUNS*D. And when RP was calculated, I made sure it was also stored in the file.

When it was time to print the report, I changed TEAM from a borrowed

field to a text field and RP from a calculated field to an integer field. The reports that resulted were similar to exhibit 8.

I found the time T-Base Reporter took to sort the 50 records in this file to average one minute and 30 seconds.

PROGRAM	BYTES
TBASE.BA	6798
TB-RPT.BA	7675
MEMMGR.BA	1757
BYTES FREE	13360

Table 1. File Lengths.

PRIMARY DESCRIPTORS	FIELD TYPE
T	Text
I	Integer
\$	Dollar & Decimal Fraction
D	Date
U	User-Defined
SECONDARY DESCRIPTORS	
B	Borrowed
BS	Borrowed and Stored
C	Calculated
CS	Calculated and Stored
M	Mandatory Entry

Table 2. File Descriptors.

REPORT COMMAND	WHAT IT DOES
DB	Identifies data base for report
SO	Sorts DB without returning fields to original order
SR	Sorts DB and returns it to original order
PL	Sets report's page length
PW	Sets report's page width
OUT	Directs report output to LCD, CRT, cassette, printer, RS232, modem, or RAM
HE	Sets header for report
CO	Sets beginning positions for columns in report
CL	Sets labels for columns
DE	Designates the fields where data will be taken for report
ST	Directs a subtotal be calculated
GT	Directs a grand total be calculated
FP	Forces a new page

Table 3. Report Definition Commands.


```

5,NAME,TEAM,POSITION,AVG,RBI
Name:,20,TM
Team,15,TM
Pos.:15,TM
Avg.:6,IB,AVGE,NAME,AVG
RBI:7,I

```

Exhibit 1. PLAY*S Screen

If you don't wish to print all the records in a data base, T-Base Reporter lets you set a range of records to be used based on a field. For example, I could limit my report to hitters with only 70 or more runs produced.

MEMORY FACTORS. The screen files in my baseball data base ate up 449 bytes of memory, while the 50 records in each of my data files occupied 4146 bytes. Since my three data bases were interdependent, I calculated the most

records I could get into any data file would be 250. However, if I had only one screen file and one data file, I calculated I could shoehorn around 700 records into the 100.

Traveling Software recommends only one program — either T-Base or T-Base Reporter — be loaded into the 100 at one time. This opens up a lot of memory for data files.

DOCUMENTATION. The manual for T-Base is the most ambitious Traveling Software's produced for any of its programs. It includes sections for neophyte owners of lap-sized computers (T-Base is also made for the NEC 8201A and Olivetti M-10); for tying T-Base to Traveling's word-processor, Traveling Writer; for managing memory; and for troubleshooting T-Base.

I found the troubleshooting section a mixed blessing, proving helpful about 50 percent of the time.

The examples for T-Base Reporter are excellent and very helpful. After botching my report file several times, I managed to debug it by using the manual's examples.

These examples and the sample data

bases coming with T-Base show Traveling is anticipating its data base's primary use will be business. The sample files set up screens for tracking vendors, customers, products, and orders. The examples illustrate how to print mailing labels, create a customer ID list, print a customer order report, and print a product order report.

As with every Traveling product, T-Base comes with a 12-minute audio tutorial conducted by the Traveling Professor. The audio segment is basically an overview of T-Base and is more promotional than tutorial.

SUMMARY. T-Base may be initially difficult to work with, but once the basics are mastered, you'll be surprised at how fast you can design reports and data bases.

As I developed my data bases, I used the Portable Computer Support Group's Disk+ to save and load files to a TRS-80 Model 4. This kind of addition to T-Base really adds to the program's power.

And make no mistake about it. T-Base is one of the most powerful programs you can get for the 100 today. ◀

NEW! IMPROVED OPERATING SYSTEM



HOLMES PORTABLE MICRO DRIVE ENGINEERING, INC.



MODEL 100 PMD-100 \$369.50

Add \$6.50 Shipping. Includes: PMD-100 Drive,
3 Wafers, AC Adaptor/Battery Charger,
Power Cable, Manual, PMD User Group Membership

MODEL 100 IM-100
8K RAM Modules \$79.50

PMD-100 Owners Manual \$4.95

MICRO WAFER

5 ft \$3.50
10 ft \$3.50
20 ft \$4.00
35 ft \$4.00
50 ft \$4.50

WAFERS

Wafers are the same as used in Model I ESF.
Also compatible with OLIVETTI MTU-231,
Royal and ADLER Tape Drives, and Structure
Design SD-2024 PAL Programmer, Stringy
Floppy for TIMEX 1000 and 1500.

A&J Micro Drive

1050 E. Duane Ave., Suite I
Sunnyvale, CA 94086
(408) 732-9292

Authorized Distributor for
Exatron and Holmes

Send \$4.95 for Owners Manual and more information

- ☐ Check or Money Order Enclosed ☐ C.O.D. add \$1.65
☐ U.P.S. Shipping cost, add \$3.00, unless otherwise specified
☐ VISA ☐ MASTERCARD ☐ CA residents add 6.5% sales tax

Card # _____ Exp. date _____

Name _____

Address _____

City _____ State _____ Zip _____

Gn-[]Bq_%r7ljmYY3@nxmh*

Fully integrated security program, SECURE for the Model 100, provides three-level file protection.

SECURE features:

- Excellent password LOCK prevents unauthorized use of your computer.
- LOCK can not be defeated by Break or Reset.
- SCRAMBLE function encrypts and decrypts text files using a user-supplied keyword — over 100,000,000,000,000 combinations. *Protect Valuable Data!
- Encrypted files retain full ASCII compatibility and can be Emailed.
- Built-in INVISI function enables hiding valuable files from the Menu.
- All Machine Code, only 865 bytes.

Price: \$39.95

includes cassette and manual
Add \$2.00 shipping and handling.
Pa. residents add 6% sales tax.

Check, money order, Visa, or MasterCard accepted.



SECURE SYSTEMS

INCORPORATED

P.O. BOX 30 • BLUE BELL, PENNSYLVANIA 19422

(215) 925-2292 CIS ID-71256,545


```
PLAY*S.DO  RUNS*S.DO  AVGE*S.DO
TB-RPT.BA  TBASE .BA*
Enter T:base name:?
```

Exhibit 2. T-Base File Display.

```
PLAY*S.DO  RUNS*D.DO  PLAY*D.DO
RUNS*S.DO  RUNS*R.DO  AVGE*D.DO
AVGE*S.DO  TB-RPT.BA  TBASE .BA*
Enter T:base name:?
```

Menu

Exhibit 5. Menu After Data Entered.

```
PLAY*S DATA ENTRY/UPDATE
Name:
Team
Pos.:
Avg.:
RBI:

Fin          New Cal End
```

Exhibit 3. Initial PLAY*S Screen

```
PLAY*S DATA ENTRY/UPDATE
Name:Barrett
TeamBoston
Pos.:second base
Avg.: 302
RBI: 43

Sav Del      Pre Nex New Cal End
```

Exhibit 4. PLAY*S After Data Entry.

```
Barrett,Boston,second base,, 43
Bell,Toronto,Third Base,, 41
Brenly,San Francisco,Catcher,, 31
Brooks,New York (NL),third base,, 30
Cabell,Houston,First Base,, 22
Carew,California,first base,, 25
Carter,Montreal,catcher,, 53
Clark,San Francisco,Outfield,, 44
```

Exhibit 6. Portion of PLAY*D.

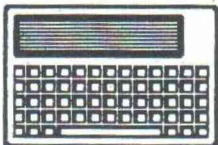
```
DB,RUNS
SR,TEAM,NAME,RP
PW,40
HE,RUNS PRODUCED
HE,American and National League
CO,1,15,28
CL,Team,Player,RP
DE,TEAM,NAME,RP
ST,TEAM,RP
GT,RP
```

Exhibit 7. RUNS*R file.

EXTEND YOUR MODEL 100 with TELECOMMUTER™

Here's a fully integrated word processing and communications software product for your Tandy 2000 or other popular desktop computer. Look at these features:

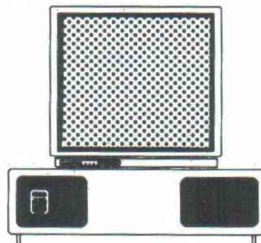
TELECOMMUTER gives you all the Model 100 TEXT Editor commands — plus lots of extensions to take full advantage of the larger display and greater horsepower of a desktop computer.



TELECOMMUTER has fully prompted fast file transfer to move text between the Model 100 and your desktop computer at 9600 baud, over a null modem cable (included).

You can use your Model 100 to control your big computer over standard telephone lines. Exchange files, execute DOS commands and run stand-alone programs from your Model 100 or other remote computer.

TELECOMMUTER also provides all the Model 100 TELCOM Communications commands — including auto-dial and auto-logon. PLUS: Optional setup of all communications parameters in each ADRS.DO record. Use the TEXT Editor while on-line in Terminal Mode.



Runs on the Tandy 2000
NO CASSETTES!

SIGEA SYSTEMS, INC.

19 Pelham Road
Weston, MA 02193
(617) 647-1098



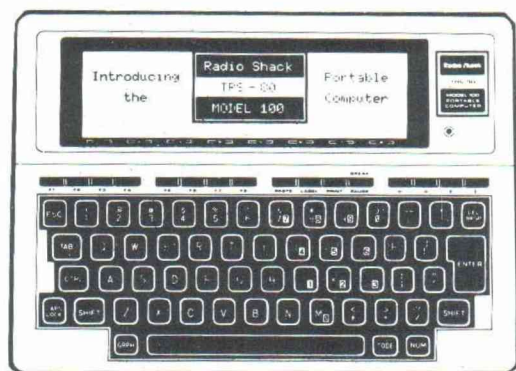
Software by Sigea

\$200 plus shipping.
Mail and Phone orders, MasterCard and Visa accepted.

TRS-80™

SAVE SALES TAX* PLUS DISCOUNT

*TEXAS RESIDENTS ADD ONLY 4%



MODEL 100 32K

FORT WORTH COMPUTERS

WE ARE SERIOUS ABOUT SAVING YOU MONEY

(Located 30 miles from Fort Worth)

377 Plaza • GRANBURY • NR FORT WORTH, TEXAS 76048

TOLL FREE: 1-800-433-S-A-V-E

Monday thru Friday — 9:00 a.m. to 5:00 p.m.

(Order inquiries/Customer Service &) IN TEXAS: 817-573-4111

Avion Communications

Your Notebook
Computer Software
Source

PORTABLE COMPUTER SUPPORT GROUP

Business Pak +	\$76.50
Data +	51.00
Sort 2 +	30.00
Tutor +	28.00
Tenky +	51.00
Disk +	59.50

AMERICAN MICRO PRODUCTS

American Calc	
Spreadsheet	\$85.00
RPN Calculator	25.00
Equation Solver	34.00

TRAVELING SOFTWARE

Time Manager	\$51.00
Appointment Manager	51.00
Sales Manager	51.00
Expense Manager	51.00
Traveling Writer	42.50

SKYLINE MARKETING

Porta Calc (Incl. Porta	
Dex & Porta Print)	\$59.50
PortaStat	38.00



Personal checks welcome.
Please add \$2.50 for shipping.
NYC residents add 8.25% sales tax.

Call toll free
1-800-235-2115
In New York call (212) 532-6660
Avion
Communications, Inc.
Suite 2405
200 Madison Ave.
New York, N.Y. 10016

T-BASE

07/31/03

Pg: 1

RUNS PRODUCED

Team	American and National League Player	RP
Atlanta	Oberkfell	41
	Ramirez	53
	Washington	60
		154
Baltimore	Murray	88
		88
Boston	Barrett	56
	Easler	65
		121
California	Carew	47
		47
Chicago (NL)	Dernier	65
	Durham	83
	Sandberg	91
		239
Cleveland	Hargrove	51
		51
Detroit	Garbey	56
	Lemon	79
	Trammel	88
	Whitaker	65
		288
Houston	Cabell	44
	Mumphrey	68
		112
Kansas City	Motley	50
	Orta	36
	Sheridan	45
		131
		1231

Exhibit 8. Portion of RUNS Report.

REVIEWS



DISK + ROM SAVES RAM, ADDS POWER

Disk + ROM

Portable Computer Support Group
11035 Harry Hines Blvd. 207
Dallas, TX 75229
214-351-0564
\$199 ROM and disks
\$130 ROM only

By WOODY LISWOOD

Editor's Note: Since the Model 100 was introduced, there has been much lip-service to the prospect of ROM-based software for the machine. However, only one vendor (Polar Engineering and Consulting) and one major software house (Portable Computer Support Group) have marketed such software.

Over the past few months, there have been a number of programs and devices introduced allowing the Model 100 to communicate with a variety of popular computers. Disk+ is one of these.

It was originally released as a cassette for the 100 (see review in *Portable 100*, August 1984, page 71) and a floppy disk for the host desktop. For a list of desktops Disk+ is made for, see Disk+ Computer List. I tested ROM Disk+ on the Apple and IBM computers and found no problems with either version.

Many of the programs on the market allow transfer of only document files. Not so Disk+. You can save all files, including machine-language and Basic files. You can also save your entire memory as a subdirectory on the floppy.

It works great.

TURNING THE KEY. You start Disk+ ROM by inserting it in the bottom of your 100. The instructions are clear

about which end goes which way. In addition, the label on the ROM was marked to show the same notches as are on the Model 100 ROM socket. It is almost impossible to put the Disk+ ROM in backwards.

According to the documentation, a cold boot doesn't result from installing the ROM. I put my Disk+ ROM in with the batteries in place and four files in memory and didn't lose a thing.

After insertion, make a couple of copies of the Disk+ floppy as backups and format some blank disks. Once the Disk+ floppy is booted, the program is loaded into the desktop's memory, so you can remove the program disk and use the blank disks as data disks.

I set Disk+ to work with both an IBM PC XT and a Compaq by creating an autoexec.bat file to set the time and date and boot Disk+. Disk+ sets its own mode so you don't need to fool with that.

LIMITED TO COM1. Also, Disk+ will work only with COM1. I normally use COM1 for a modem and COM2 for a printer. When I want to up- or download, I just unhook the cable from the modem and plug it into the RS232 port on the 100. Since it was already set up for a modem, I do not need to use the null-modem cable from Radio Shack.

If you only have one serial port on your IBM, it may be set for a printer, and you would need a null-modem adapter in your serial cable line to get the 100 to talk to your computer. When you get Disk+, try to have both types of cables available and see what happens.

I also tested the Disk+ with a SmartCable from IQ Technologies and it works fine with both DTE and DCE serial configurations.

The first time you use Disk+ ROM, you must enter Basic and type CALL 63012. That puts Disk+ into the permanent memory menu and will always appear there for your use, taking up none of your precious RAM.

FUTURE ROMS. The documentation says this location will be used for future ROMs developed by the Portable Computer Support Group. If you changed ROMs, the next time you accessed the Disk+ menu, you would access the new ROM. When you exited that ROM, your main menu would show the ROM named correctly.

You start up Disk+ the way you would any of the programs shown on the 100's main menu: Place your cursor over the name and press enter.

You don't use your desktop's keyboard for anything. You use the micro's keyboard to translate text files from Disk+ format to DOS format or vice versa and to exit to DOS.

OPTIONS FOR 100. Disk+ ROM has seven menu items.

F1 (DISK) shows your desktop's Disk+ files. When you press F1, DISK changes to RAM. Press F1 again and you will be shown the files residing in your 100's RAM.

F2 (NAME) allows you to rename your files.

F3 (STAT) shows you four TEL-COM STATs: one for most computers, another for most CP/M machines, a third for an APPLE II, and one you may determine.

F4 (SIZE) displays the size of any file in bytes. This is done by placing the cursor on a file name and pressing F4.

F5 (KILL) works like kill in Basic. You place the cursor over a file name, press F5, and verify the kill by pressing Y. Very convenient.

F6 (SVALL) dumps the 100's RAM to disk. When you invoke F6, the RAM files are placed in a subdirectory. You must assign a name to the subdirectory before you dump your RAM to disk.

F8 (MENU) returns you to the standard 100 menu.

OPTIONS ON FLOPPY. When you're on the floppy:

F1 (RAM) returns you to the RAM directory on the Model 100;

F3 (SIZE) tells you the size of a disk file in bytes;

F4 (KILL) works like kill on the Model 100;

F5 (LDALL) allows you to load a sub-directory from disk to RAM on the Model 100; and

F8 (MENU) returns you Model 100 menu.

Pressing shift-break will stop Disk+ and return you to the Model 100 menu.

NEVER RESET? The documentation never press reset to break out of Disk+. I hung up my 100 by trying to load a file to the disk without hooking up the cable. Then I hit reset. It worked, but I was returned to Basic rather than to the Model 100 menu.

I pressed reset a number of times and couldn't cause anything bad to happen, so I can't say why PCSG is so adamant about using reset.

The documentation is similar to other PCSG programs. It is printed rather than typeset and comes in a brown standard size three-ring binder. It reads well, is direct, and to the point.

Disk+ ROM is a great advance in programming for the 100. On board, without taking up any RAM, is an entire disk manager. Hooked up to the micro computer of your choice, you gain the capability of using a standard floppy disk as if it were part of your system. ◀

DISK+ COMPUTER LIST

Radio Shack Models:
I, II, III, 4, 12, 16
2000, Color Computer
IBM PC
Apple
Epson QX-10
Kaypro
Osborne I
Compaq
Corona
Eagle
Olivetti M18 and M24
Columbia
TI Professional
AT&T

PROBLEMS ABOUND IN THIS DATA-BASE MANAGER PROGRAM

Data 1

Microbyte
11047 N. 19th Ave.
Phoenix, AZ 85029
602-943-9080
\$39.95

By WOODY LISWOOD

Data 1 purports to be a data base. Maybe so, however, I tested two different versions and neither of them worked.

First things first. The data-entry routine worked and recalled data, that is until I sorted that data. After sorting I was unable to recall any records. Each recall attempt led to an error message with a bomb back to Basic.

Whatever the problem, it has compound effects. Doing the sort wipes out the program! After the records are sorted, you can't load the sorted file;

BACK IT UP!

T-backup

**Fast cassette storage for
your Model 100**

**Transfer 32K of RAM in
just 4 mins. It's fast!**

Available through **EXPRESS
ORDERING** at your Radio Shack
store. **1-800-343-8080**



11050 Fifth Avenue NE
Seattle, Washington 98125
TM (206)367-8090

you're not even able to create a new file. You must reload from tape.

FIELDS AFIELD. Data 1 has an unusual methodology of defining fields. It comes configured for 14 nine-character fields. If you wish to go longer than that, you may combine two fields during data entry.

You cannot have 15 fields, though. Fourteen is it.

You cannot go more than two fields in length for any single field. That means Data 1 isn't acceptable for typical name and address lists.

Here's what happens. My office address is 900 Larkspur Landing Circle, Suite 155. That is 38-characters long including spaces. Since I can combine only two fields for up to 18 characters, I couldn't spell out that address.

Also, each field name takes up the same amount of space on the screen so you can't have a two-column state designation. You have the two columns plus the remaining seven characters taken up on the screen.

You design the screen by responding to a series of prompts for field name. If you make a mistake in spelling, you

must do it over. The cursor control keys are counted as characters.

MORE PROBLEMS. Entering information is frustrating. You can't edit data as you enter it. If you make a typo, you must go through the entire record, return to the field, and then retype the field.

Not too bad, you say. Hold on a minute; you only want to change one field. If you press the carriage return through all those good fields, they now are erased when that record is stored. You have corrected the field with the error and erased all of your good fields. Swift, huh? You must use the down arrow to go past the fields; it works some of the time.

Another feature is if you use an = sign in the field name, the field will automatically total during printing.

Data 1 has a printing routine. The documentation shows you can select a field or fields to print as well as where on the paper you wish the printing to occur. Since I was never able to get a sorted data-base, I never tested the print routine. Hence, I'd not recommend this program in its present state. ◀

THIS SOFTWARE DOESN'T MEET THIS SALESMAN'S NEEDS

Traveling Sales Manager

Traveling Software Inc.
11050 Fifth Ave., N.E.
Seattle, WA 98125
206-367-8090
\$59.95

By HUGH S. EVANS

Don't misinterpret this program's title. The Traveling Sales Manager was written for sales people, but not sales managers.

The heart of the program is the sales module intended for entry of customer contacts, biographies, and orders. Another module, reports, enables data to be printed in specific formats. Other modules enable the sales person to update product descriptions, prices, changes in tax rates, and to interface with other programs offered by this vendor.

RESEARCH REPORT

MICROCOMPUTER OPERATING SYSTEM STRATEGIES

- Explores impact on micro hardware and software business of trends in operating systems, including Unix, MS/DOS, CP/M.
- Discusses user perceptions of operating system elements including data management, and the interface between applications software, programming tools and DBMS.
- Details past and future impact of Xerox Dynabook and Smalltalk developments on products such as Apple's Lisa, Quarterdeck's DESQ, Visicorp's VisiOn, etc.
- Establishes the product-planning parameters for future micro product offerings, and reviews probable adherence to these parameters by AT&T's future 32-bit micro, IBM's rumored "4301" and other upcoming products of significance.
- 237 pages; 42 exhibits; published September 1983; price \$1,650.00.

For free descriptive literature and a detailed table of contents, contact:

INTERNATIONAL RESOURCE DEVELOPMENT INC.

30 High Street
Norwalk, CT 06851 U.S.A.
Call TOLL-FREE
800-243-5008
(203) 866-6914
WU Telex 64 3452



*There's always
Smooth Sailing
with the -*

WEATHER FORECASTER

For the boater, sailor, aviator, traveler, fisherman, hunter and anyone who plans a trip or an event, our software cassette accurately predicts and projects up-to-date weather information. With the touch of your finger, instantly you'll know storm weather, moving and stationary fronts.

ONLY \$19.95. A WEATHER FORECASTER for the personal computer Model 100 and an easy to read instruction booklet.

Please add \$2.00 for shipping and handling charges. Michigan residents add 4% sales tax.

\$19.95 Per Cassette

**CAPS
MARKETING**

2555 Lake Drive, S.E.
East Grand Rapids, MI 49506

The entire concept seems to have been directed toward those who make single item sales a few times a week or month. The program doesn't lend itself to handling orders where listings of multiple items are needed, as in hardware sales. Entering a single item order with a single description is straightforward and easy.

SALES CALL. To review each module in the normal sequence encountered in sales, let's start with the customer log.

I was disappointed to find it's mandatory to enter the customer ID to originate or update an entry. It isn't possible to enter the company or contact name, then search and automatically display or enter the ID. This restraint forces the user to refer to a separate list to get the ID field.

In contrast, a find or search capability based on the ID has been provided. On entering the ID, the current data and customer name is automatically entered. A reminder field allows the next contact date to be entered and there's a flag which can be set to remind the user some action is required.

Two lines for comments are available, each having 28 characters. If more space is needed, the entered data will overflow to page two. If too much data is keyed in, it'll overflow to page one, destroying what was entered previously.

Next, we have the screen to add or update orders. Again, entering the customer ID will cause the customer's name to fill automatically. As noted earlier, single item orders easily are entered but no provision was made to handle multiple items without reentering the header data for each item.

SMALL SCREEN. The customer-biography screen defines appropriate historical data for each account. It's at this point in the documentation Traveling Software points out the user should generate a master list of customers and their ID numbers. I feel the screen should have had fields for names of several contacts, not just one, along with their phone extensions.

My personal preference is to use four letters for the state name, not two, and to add five more spaces for the new

zip codes. The zip code is the last field on the screen and keying in the number causes the screen for page two to appear. It has fields for two phone numbers (but no way to enter for whom each is for) and three lines for notes. Again, overflowing page two causes data entered on page one to be overwritten.

The product-description screen seems adequate but it has no provision for showing different price/quantity breaks. I couldn't find a way (except to cut and paste) to recall description data and transfer it to the order module.

BYTE AND TIME WASTER. In performance, I found the program to be less than desirable. The sales module takes almost 11K. It also uses seven titles on the directory. Next, the report module requires nearly 7K. In actual use, entries in both the contact log and the biography log use 400 bytes each, while each order entry uses 200 bytes. Presuming the 100 has 24K, the useable memory is about 20K.

After loading the sales module, there'll be only 9K left for customer



WHY BREAK YOUR BANK ?

You must be paying too much for
Model 100 Software

SJi LEADS THE WAY WITH OUTSTANDING
PRODUCTS AT AFFORDABLE PRICES

NEW SJi Assembler

Code occupies 8k RAM. Features Intel-style mnemonics, most needed pseudo-ops, offset addressing user-friendly error messages.

SJi Word 100

Features directed output, menu control (line, page, text length, more), file chaining, page numbering, merge with mailing address file, multiple copies, margin controls, and Much More.

SJi Graphics to Printer Dump

Dot by dot transfer of whatever is on the screen. Versions for these printers: TRS-80 graphics Epson FX, RX or Mx models with Graf Trax Plus, NEC-8221A, serial printers without auto line feed but with optional hardware handshake (ready busy on pin 5), all parallel printers (using a "#" sign on a rotated screen). Specify printer.

SJi RTTY

Operates at all popular baud rates with 1 or 1 1/2 stop bits. All communications through RS-232 port. Optionally echo all received signals and keyboard strokes to a parallel printer.

(User-supplied FSK modular/demodulator required.)

TRS-80, EPSON, GRAF TRAX PLUS, & NEC ARE REGISTERED TRADEMARKS OF TANDY CORP., EPSON AMERICA, INC. & NEC AMERICA, RESPECTIVELY.

SWINDELL JUDY inc. SUITE 349 4316 DRESSLER RD. N.W. CANTON, OH. 44718 216-833-7504

data. Twenty-five biographies could take up as much as 10K, or to use the system differently, there's space for about 20 customer contact records plus a few order entry records. In short, it's impractical to load more than the sales module at one time. Some fields must be saved to tape in order to load the report module to print a weekly report.

While the documentation is well done, both Olivetti and NEC instructions are included in the text. They were intermingled with no font change so there was some confusion in following the sequence. I couldn't help but notice the binder didn't include Traveling Software's phone number. The only support offered is through written inquiries. While they may feel this is adequate, it isn't acceptable to me, a novice.

To terminate the program, it's necessary to repeatedly press a function key. There's no quick exit.

Data entered on the screens was very slow to save. All the modules were slow. I'm no speed typist, but I always outran the system display.

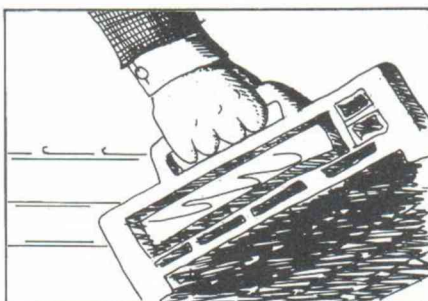
Finally, the screen and the printer

format are cast in brass. Nothing can be changed.

LIMITED. In summary, I think the present program concept fits a rather limited group of users and the nice features built into it are overshadowed by the shortcomings and narrow operating limits.

I gave up after trying to use the program in the field. The software was wasteful, time consuming, and too inflexible for me to use. Functionally, I was frustrated.

I've sold everything from hardware to computer systems and I found this program unacceptable in its present format. ◀



AN ELEGANT SOLUTION TO PC TO 100 XFERS

TransDoc

Software-Plus Inc.
100 North Country Road
Setauket, New York 11733
516-751-1565
\$79.95

By WOODY LISWOOD

Some problems never seem to have an elegant solution. By elegant, I mean a solution that is simple, practical, easy to implement, and transparent in usage. TransDoc fits all of that definition.

The program is designed to take document files from a Model 100 and transfer them into a word-processing or DOS file on the IBM PC.

TransDoc is a combination of hardware and software. There are two programs for the Model 100 (they take up about 1500 bytes of space) and a plug and cable to hook up to the PC.

OUR BIGGEST ACHIEVEMENT IS ALSO OUR SMALLEST.

TEXT POWER 100

The Covington Group
310 Riverside Drive, Suite 916
New York City, N.Y. 10025
Phone 212 678-0064/864-1700

CABLE CONNECTION. The cable plugs into the PC keyboard plug. The PC keyboard is inserted into a switch box connected to the cable. From the switch box a flat cable goes into the printer port of the Model 100.

The switch box has two settings, one for the IBM PC keyboard and the other for the Model 100.

When using TransDoc, plug in the cable, throw the switch to "LAP," and away you go. When not hooked up to the Model 100, leave the switch on "HOST" and use your IBM keyboard as normal.

To use TransDoc, have some text files for transfer to the IBM PC. Boot the PC and start up your word processor. Then go to the main menu on the Model 100 and run a program called DOCPC. It displays a new menu saying press F2 to SEND and F4 to END.

Pressing F2 displays all document files. F1 then says KEY and F4 still says END. Typing in the name of a file sends it to my IBM PC as if it were being typed in by hand.

SMART KEYBOARD. What's happening is the Model 100 has become an in-

telligent keyboard for the IBM PC. No serial ports and no problems. No mode problems. No STAT problems. Just all the text being transmitted as if I were typing it in myself.

If I press F1, the Model 100 acts as a normal IBM keyboard and everything typed on the 100 appears on the PC. Only one word of caution: Since the Model 100 does not have IBM compatible function keys, it can't run any word processor relying on function keys to get things done.

Pressing F4 returns you to the Model 100 main menu.

While the file is being sent, F3 becomes PAUS. Pressing F3 stops the action until it's pressed again.

During the file transfer operation, TransDoc keeps track of the number of characters it's sending and displays that count on the Model 100 screen.

DOCUMENTATION. The documentation is 11 pages of photocopied, daisy-wheel produced instructions. They described step by step: plugging in the cable, hooking up the keyboard and the Model 100, and loading the programs needed from cassette tape.

I had to crank up the volume two steps above normal to get the tape to load. Other than that, there were no problems.

I use the Model 100 mostly for text work while traveling. Prior to TransDoc, I used a small program from a computer magazine to make the files WordStar compatible and used a terminal program to capture the text file being transmitted through the serial port.

Then I booted WordStar and reformatted the file so I could work with it.

NO PROBLEMS. I could find no problems. However, this keyboard only works on a IBM PC or PC XT, since it replaces the keyboard plug. I have an XT at work, so things work fine there. I have a COMPAQ at home. No luck there, since the keyboard is hardwired into the computer.

I was not able to test TransDoc on any other of the compatibles, so if you have a removable keyboard on your PC compatible, I would check with TransDoc before purchasing.

Also, TransDoc only transfers document files. This is similar to other soft-

SAVE COST AND EXPAND YOUR MODEL 100 & 8201A

Memory Upgrading Kit with Substantial Cost Saving

Memory	8Kx8 CMOS/RAM	8Kx8 CMOS/Low Power
16K Kit for TRS80 Model 100	\$ 70.00	\$ 95.00
16K Kit for NEC 8201A	\$ 70.00	\$ 95.00
32K Kit for NEC 8201A	\$130.00	\$180.00

GP-IB (IEEE-488) Bus Adapter \$300.00

With Controller/Talker/Listener
Command Interpreter Method

High Quality A/D Converter for Model 100 or 8201A \$695.00

Data Acquisition and Process Control in Lab or in Field BASIC Input
and Output Statements Do Data Acquisition 4 Channel 12 Bit Analog
Input/ 12 Bit Digital Output 24ms Max Speed

I.O. Datatech

Phone (212) 522-4943
(212) 875-0826
48-60, 38th St.
L.I. City, NY 11101

TRS 80 Model. Trademark of Tandy Corporation.
NEC-8201A. Trademark of NEC

IT'S FINALLY HERE!

The Touchbase

INTERNAL MODEM FOR NEC-8201A & EPSON HX-20

- Completely self contained
- Installs in minutes
- No soldering or modifications
- Low power CMOS → Auto on/off

NOW \$129

(Calif. add 6.5%)

TouchBase Design 1447 S.Crest Dr.,
L.A., Ca., 90035
213-277-1208

Dealer inquiries invited



TransDoc running on an IBM PC operating WordStar.

ware-based transfer programs. If you need to store and retrieve Basic and machine-language files, you will need something like Disk+ (see related review in this section).

This is an elegant solution to getting text from the 100 to a IBM PC. It works simply, easily, and is what all great gadgets should be: functional. ◀

BLACK JACK REMEDIES ACOUSTIC WOES

Black Jack

The Microperipheral Corporation
152nd Ave NE
Redmond, WA 98052
206-881-7544
800-227-3800 x245
\$49.95

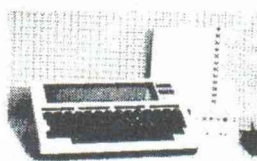
By WOODY LISWOOD

This goody belongs in the greatest gadgets of the world list. It replaces

Model 100 / NEC 8201A JOYSTICK

Add the feature the manufacturer left out! Now available in two models, a plug in ready version and a complete kit version which requires user installation. Both models are shipped completely assembled and include the joystick adapter harness, a precision miniature joystick to maintain portability, full documentation with drawings and photos, FREE software and audible instructions on cassette tape. Instructions on converting existing software to joystick use is also included.

PLUG-IN VERSION \$84.95 **KIT VERSION** \$44.95
(limited availability)



**SHIPPING & HANDLING
PREPAID ORDERS**
SEND CHECK OR
MONEY ORDER \$1.50
COD ORDERS
FOR FASTEST
SERVICE \$3.50



**SUSIE
SOFTWARE**

24 HR C.O.D. PHONE
(312) **577-5154**

874 East Northwest Hwy. Mt. Prospect, IL 60056

SOFTWARE

KEYBOARD AND JOYSTICK COMPATIBLE
Model 100 / NEC 8201A

MICRO-FLITE II \$29.95
A flight simulator game. Multiple airports and difficulty levels.

MICRO-FILES II \$29.95
A powerful data management program with searches, sorts, alphabetizing.

MICRO-LABELS II \$29.95
A versatile list and label program with searches, sorts, alphabetizing.

MICRO-SALES II \$29.95
Generates receipts, invoices, sales orders and purchase orders.

MICRO-MATH II \$19.95
A calculator with 7 programmable memories and a fractional math program.

MICRO-BYTES \$49.95
A data management program with mailing label capabilities.

3620 ~ 244 Street, Langley, B.C. V3A 4P6



Hardware, Software, Accessories

TRS Model 100, Olivetti M10, NEC PC8201A

Telephone 604-856-8858

VISA ~ Master Charge

Canada Portable Computer

Circle No. 50 on Reader Service Card

CRYPTTEASE

Hundreds of cryptograms & a tool to take the tedium out of solving them, leaving the challenge in. Even people who never do a daily newspaper puzzle love to solve cryptograms with CRYPTTEASE! Several levels of difficulty — kids can use it!

Available on cassette for the 16K + Model 100

\$19.95 Crypttease & 100+ sayings

\$19.95 500 additional sayings

T, E ERY DAY AT LEAST, T EAR A
mle mypdx, cbcki egi gx scgix, xm dcgk g
L TTLE S , READ A D P EM, SEE A
sjxxsc fmlp, kce g pmme rmcw, fcc g hjlc
P CT RE A D DEC DE A SAY - ET E/MAK
rjtxuke gle ectmec g fgijlp.- pmaxdc/wgo

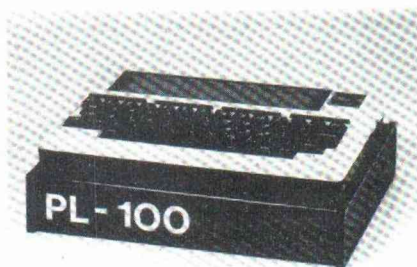
MAK, Ltd.
PO Box 158
Spring City
PA 19475

\$29.95 for both S/H-\$2.50

Please add 6% sales tax in PA

EXPANSION TO GO

Battery powered interface for the Model 100. Gives Analog and Digital I/O capabilities to your Radio Shack or NEC portable. Whether in the lab or in the field, Data Acquisition and Process Control are now more affordable than ever. Easy to program using BASIC input and output statements.



Complete PL-100 System \$498 includes:

- Expansion Chassis (holds 3 boards)
- Combination I/O board with
 - 16 Channel 8 Bit Analog Input
 - 4 Channel 8 Bit Analog Output
 - 4 Analog Level Sense Inputs
 - 16 Bits Digital Output
 - 16 Bits Digital Input
- Battery Charger / AC Adapter
- 2 Empty expansion slots

- Uses rechargeable batteries and provides power to the Model 100

- Expansion boards available:
 - High Accuracy 12 Bit Analog I/O
 - 16 Bit Digital I/O
 - Combination Analog & Digital I/O

ELEXOR ASSOCIATES

P.O. Box 246
Morris Plains, N.J. 07950
(201) 299-1615

Circle No. 51 on Reader Service Card

acoustic-cup connectors for the 100's modem so you can direct dial through phone systems without standard modular plug fittings.

It is a rubber donut with a circuit board in it.

When Black Jack is used, you unscrew your phone's mouthpiece and remove the microphone.

Press Black Jack on the fitting. Make certain the the arrow on Black Jack faces toward the cord entering the fitting on the phone handle.

BEIGE LEAD. Insert the beige lead from the 100's RJ11C direct-connect line cord into the female plug on Black Jack. The silver lead remains disconnected.

You now can use the modem as if it were directly connected the phone line — if you have a touchtone phone.

"So," you ask, "why is this such a great item?." Let me give you a personal example.

My Model 100's direct-connect cable expects to be plugged into the standard modular fitting. However, as a consultant, I travel a lot and use the 100 at work. There are major problems.

At work, I have a multi-line phone on the desk. It doesn't use the standard RJ11C fitting.

ON THE ROAD. On the road, most hotel phones I find have an extra line on their plug for the message system or are hard wired. That means no direct connect modem.

Prior to Black Jack, I carried Radio Shack's acoustic cups with me. When on the road, I just hooked them to both ends of a phone and normally everything worked okay. I say normally, because they tended to be bothered by excessive line noise, and sometimes didn't want to make connections. They also took up about a 3-inch-by-8-inch-by-3-inch section of my travel space.

Black Jack is smaller than the phone mouthpiece. It only takes up a few cubic inches of space in my travel case. That, in itself, is great. And the documentation says Black Jack gives me 20 decibels more sensitivity than my acoustic coupler, although I didn't have any way to test that claim.

FOUR SYSTEMS. Black Jack comes with a plastic fitting to protect the contacts. You pull off that fitting, unscrew the mouthpiece of your phone, and snap

Ask your dealer for the Porta™ series from Skyline—to help you work faster and better!

PortaCalc™—Model 100 “electronic spreadsheet” with 14 column by 26 row workspace! Full use of the built-in function keys to save, load, screen print, report print, or to look behind the data at the formulas in use.

Full arithmetic operators including exponentiation, absolute value, integer, summation, and averaging. Calculations are done to 14 digits of precision and displayed up to 9 digits. User selectable decimal place from none through seven—not just one, two or floating! Formula replication is included to allow fast creation of worksheets.

Worksheets may be saved, loaded, or merged using the computer's memory or cassette. Often used templates can be saved in memory for instant recall.

Two powerful utility programs are included with **PortaCalc** at no extra charge! **PortaDex™** is a data exchange program that allows reformatting **PortaCalc** files into the DIF format used by **VisiCalc**. **PortaPrint™** is an enhancement to the Model 100's text editor, adding the ability to adjust left, right, and top margins, and page length. Page numbering, headers, centered lines, flush right justification, new page control, and more.

Comes with extensive documentation in a padded 3-ring binder. Includes tutorial and detailed reference section. Fully illustrated with screen prints, examples and hints. **\$69.95**

PortaStat™—Correlation, regression analysis, and descriptive statistics package, designed to be a working tool for today's businessman. Data can be input from cassette, memory, or keyboard. Interactive with **PortaCalc** data files! Thoroughly documented, includes tutorial. **\$44.95**

PortaFin™—PV, NPV, FV, annuities, IRR, bond calculations and more! Handles up to 5 different loans or 100 series of cash flows simultaneously. This user-friendly package prompts you for the needed input data, then gives you the answer to your loan or investment problem. Interacts with **PortaCalc** files to avoid time-wasting repetitive data entry. Tutorial, examples, and bibliography included. **\$44.95** (Model 100 only)

PortaTax™—A tax planning, forecasting, and strategy program for the tax professional and upper income individuals. Calculates Federal Income Tax using all four possible filing statuses. Allows all sections (i.e. income, deductions, adjustments, and Keogh deductions) to be entered in detail (line by line) or in total. Automatically calculates longterm capital gain exclusion, maximum Keogh contribution, two wage earner adjustment, medical deduction limitations, and casualty loss deduction limitations. Calculates tax using both the tax rate schedules and income averaging, after IT determines whether or not the taxpayer qualifies for averaging and alternative minimum tax. Calculates self employment tax. All items needing to be paid are shown on a recap screen, with hard copy option. Full use of function keys. **\$99.95** (32K RAM recommended).

PortaMax™—The powerful “simplex” method of linear programming. Find the optimum “mix” for a given set of constraints. Interacts with **PortaCalc** files to avoid time-wasting repetitive data entry. Tutorial, examples, and bibliography included. **\$44.95**

Tele-Stock™—Stock market decision assistance, 12 to 24 hours ahead of the newspaper! Automatically calls the Dow Jones News Service immediately following the close of the market each day, retrieves the market activity for your investments, then displays and prints today's activity, 45 day high, low, close, and volume graph, and return on investment. Improve your investment performance for only **\$59.95** (Model 100 only)

All **Porta** series programs are supplied on cassette and require 24K RAM. Unless otherwise noted, all programs are available for TRS-80 Model 100, NEC 8201, and Olivetti M10. If ordering direct, add \$2.00 shipping and handling per order. Dealer inquiries invited.

PortaCalc



Model 100 is a trademark of Tandy Corp. VisiCalc is a trademark of VisiCorp. DIF is a trademark of Software Arts.



4510 W. Irving Park Rd. • Chicago, IL 60641 • (312) 286-0762
24 hr. Modem Order Line (312) 286-9015

Wherever you
are your

IBM PC

is with you!



With Remote Control™ software

... and your Model 100, HP® Portable or any other portable computer. A convenient link between your portable and your IBM, whether they are side by side or a thousand miles apart. Exchange files, leave messages, even take control of your IBM® PC from your portable's keyboard.

To order or obtain more information call or write now. Only \$180 with null modem cables. VISA/MC welcome.



251 Park Avenue South,
New York, NY 10010
(212) 475-5200
Tlx: 467383 KML NY

© 1984 Kensington Microware Ltd.

REVIEWS

Black Jack on the mouthpiece. Then use your modem normally. I tested it with four different phone systems and had zero problems with anything.

If you do not have touchtone, then you would dial your phone number prior to going to terminal mode with your modem software. The documentation says if you go through a switchboard, make your call before you take off the mouthpiece and microphone.

There is no documentation to speak of. The instructions are printed on the box containing Black Jack. I started up with little difficulty.

ONE PROBLEM. I had one problems. When I first hooked up Black Jack, nothing happened. I thought it was defective. Then I realized I had to bend the electrical connectors in my phone to reach the connectors on Black Jack. After that, it worked perfectly with no problems.

Black Jack has become a permanent part of my life. It stays with the Model 100 permanently.

I also hook up my Hayes 1200 baud Smart Modem and IBM PC at work without putting a special tap into the multi-line phone connector.

If you have problems with standard fittings and need a good solution to a vexing problem, Black Jack is great. ◀

A VALUABLE TOOL FOR PROFESSIONALS MANAGING PROJECTS

Traveling Project Manager

Version 2.1
11050 Fifth Ave., NE
Seattle, WA 98125
24K required, 32K preferred
\$59.95

By SCOTT L. NORMAN

The Traveling Project Manager is a welcome addition to Traveling Software's line of applications programs. I believe it's unique among Model 100 software: a package letting a manager track time and money charged to a project.

A spreadsheet or data-file manager with arithmetic capability could deal with these tasks, but Project Manager handle them more easily.

It's designed for recording charges against a project, and generating a variety of summary reports depicting the project's status at various levels of detail.

Before getting into the system, I should probably mention what Project Manager is not.

It's not a PERT (Program Review and Evaluation Technique) or CPM (Critical Path Method) program; it won't find those elements of a project which will delay the entire effort if they're allowed to slip.

It doesn't estimate the probability of task completion dates either.

In the same vein, it won't perform resource leveling. If you lay out a project schedule calling for 100, 25, and 72 workers to be on the job during three successive weeks, Project Manager will quietly go along with you.

These aren't damning criticisms, since I doubt anyone could actually stuff a PERT or CPM package into the 100.

Some of Project Manager's summary reports do help clarify the status of a project so the manager can make better decisions about critical elements of the work, but the program itself is really intended for time-and-cost tracking.

Project Manager is quite useful within its own sphere. But I think it's important to be explicit about what that sphere is.

NUTS-AND-BOLTS. Like the rest of the Traveling Software line, Project Manager is packaged in a compact three-ring binder that holds the program cassette. The tape has Project Manager's four programs on one side, a pep talk by the vendor's Traveling Professor character on the other.

I could do very nicely without the Professor, but I have to give the rest of the production pretty high marks. There's enough illustrated introductory material to help the first-timer load and run the program successfully—a common feature of Traveling Software products.

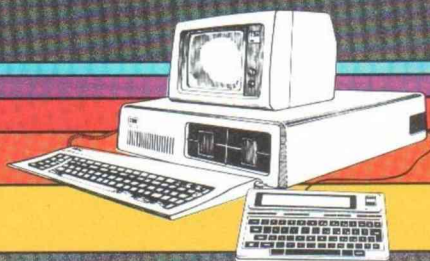
I do have one criticism, though. In the interest of commonality with the rest of the product line, the vendor has chosen too compact a package: that is, the binder rings are too small for the volume of material in the Project Manager manual. As a result, it's almost impossible to turn pages without having the binder pop open. I found this so

FILES TRANSFERRED INSTANTLY from your **MODEL 100**

to: TRS-80 MODEL 1, 2, 3, 4, 12, 16, 2000, COLOR COMPUTER • IBM PC, XT, AT • COMPAQ • CORONA
APPLE IIe, IIc, II+ • EPSON QX10 • KAYPRO • OSBORNE • XEROX • CPM COMPUTERS **using**

Available on a
snap-in ROM chip

DISK +



NOW your MODEL 100, plus your other computer is an instant disk system

FINALLY! Use disk storage with your Model 100

SIMPLE! Transfer any file (Text, Basic, Machine Code) with a single function key

IT'S SO EASY!

Simply place the disk in the disk drive and power it up. Place cursor on DISK + on your Model 100 menu and press enter. You are shown the disk directory on your Model 100 screen. You transfer any file from RAM to disk or disk to RAM with merely a single function key. **INSTANTLY!**

FULL ERROR CHECKING!

Guaranteed integrity of all data you transfer. Every line transmitted until verified, at 19,200 Baud, 10K bytes in 5 seconds!

Files transferred instantly with a single function key.

COMPATIBLE!

Model 100 Files instantly usable on IBM and vice-versa. Also IBM, Apple, CPM cross compatibility.

DISK + \$69.95 includes cassette, disk and excellent manual (CABLE \$40.00 — or use RS232C with null modem)

MC, VISA, or C.O.D.

PORTABLE COMPUTER SUPPORT GROUP

11035 Harry Hines Blvd. No. 207, Dallas, Tx. 75229

PCSC PROVIDES HOTLINE SOFTWARE SUPPORT FOR THE MODEL 100. CALL US AT 1-214-351-0564

The Computer of the Year Is Waiting for You!



**The Radio Shack
TRS-80® Model 100
Selected Hardware
Product of the Year
by Infoworld® and
Portable 100® Magazines.**

You Get 5 Built-In Programs!

- Personal Word Processor
- Appointment Scheduler
- Address/Phone Directory
- Telephone Auto-Dialer
- BASIC Language

Since its introduction, the TRS-80 Model 100 has become the most highly-acclaimed lap-size computer ever. Why? Because it's a true portable that also includes a built-in telephone modem, works on batteries or

with an optional AC adapter, and fits in your briefcase with room to spare.

Turn on Model 100 and select a program listed on the easy-to-read display. A full-size typewriter keyboard makes word processing



easy. With Model 100's communication program and modem, you can send and receive information by phone. And you can add cassette software, plus expand with a

printer, disk storage and more.

See what all the excitement is about! Get your own TRS-80 Model 100—the #1 portable computer in America—at a Radio Shack Computer Center, participating store or dealer.

8K Model 100
59900
26-3801

Was \$799.00
in Cat. RSC-11

As Low As \$35 Per Month
On Citiline Credit

24K Model 100
79900
26-3802

Was \$999.00
in Cat. RSC-11

As Low As \$45 Per Month
On Citiline Credit

Radio Shack®
The Technology Store™
A DIVISION OF TANDY CORPORATION

THE TRAVELING PROJECT MANAGER
PROJECT OUTLINE

Page 1

REPORT DATE: 08/22/85 15:06

Project	Activity	Task	Activity/Task Definition
=====	=====	=====	=====
NEULAB	CON		LABORATORY CONSTRUCTION
		CTR	
		FE	ENGINEERING & PROPOSALS
		JPS	
		JVG	
		MTL	MATERIALS COSTS
		RPH	MATERIALS COSTS
	MBE		INSTALL & CHECK OUT MBE
		JPS	
		JVG	

Figure 1. Project Outline.

THE TRAVELING PROJECT MANAGER
PROJECT SCHEDULE REPORT

Page 1

REPORT PERIOD: 04/23/84 - 05/15/84
REPORT DATE: 08/22/84 11:25

UNIT OF MEASUREMENT: Day
ESTIMATED TIME: "e"
ACTUAL TIME: "a"

Project	Act	Task	Start	End	Est/Act	Est/Act	Apr	May
=====	=====	=====	=====	=====	=====	=====	=====	=====
NEULAB	CON		04/23	05/14			22222223	111111
			04/23	05/13			34567890123456789012345	
		CTR	04/23	05/14	eeeeeeeeeeeeeeeeeeee			
			04/23	04/23	a			
		FE	04/23	05/14	eeeeeeeeeeeeeeeeeeee			
			04/23	04/23	a			
		JPS	04/23	05/14	eeeeeeeeeeeeeeeeeeee			
			04/23	04/23	a			
		JVG	04/23	05/14	eeeeeeeeeeeeeeeeeeee			
			04/23	04/23	a			
		MTL	05/13	05/14				ee

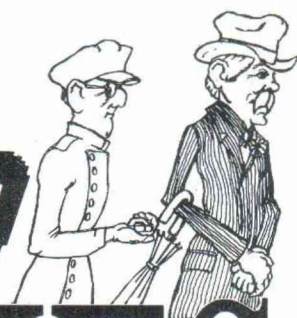
Figure 2. Graphic Presentation of Data.

Over
\$6000
WORTH OF PRIZES
TO BE GIVEN AWAY

ENTER
THE

PORTABLE 100

SWEEPSTAKES



GRAND PRIZE

RADIO SHACK'S \$800 VIDEO DISK INTERFACE plus a \$600 DYNAX DX-15 printer from the COVINGTON GROUP and a copy of TEXT POWER 100.

\$1450 worth of GREAT PRIZES

SECOND PRIZE

PORTABLE COMPUTER SUPPORT GROUP'S \$550 PORTABLE DISK DRIVE AND \$600 worth of PCSG software.

\$1150 worth of more GREAT PRIZES!

THIRD PRIZE

the \$500 CHIPMONK from HOLMES ENGINEERING plus \$500 worth of Software from TRAVELING SOFTWARE.

\$1000 worth of still more GREAT PRIZES!

FOURTH PRIZE

the \$400 PORTAPAC from CRYPTRONICS and \$400 worth of software from AMERICAN MICRO PRODUCTS.

\$800 worth of prizes! SUPER!

FIFTH PRIZE

\$325 worth of 32K RAM expansion from PG DESIGN and \$260 worth of software from SKYLINE MARKETING.

\$585 worth of prizes! MEMORABLE!



SIXTH PRIZE

A \$240 value! WELL DONE!
\$180 worth REMOTE CONTROL software from KENSINGTON
MICROWARE and \$60 carrying case from KANGAROO VIDEO
PRODUCTS.

SEVENTH PRIZE

\$150 worth of software from KEY SOLUTIONS.

TERRIFIC!

EIGHTH PRIZE

\$118 worth of software from SUSIE SOFTWARE.

BEAUTIFUL!

THREE 9TH PRIZES

\$70 worth of 8K RAM chips from PURPLE COMPUTING.

EXCELLENT!

TWO 10TH PRIZES

A \$47 value each! CHARGE!
8 amp hr. rechargeable battery and charger (PRAIRIE POWER)
from BLUESTEM PRODUCTIONS.

11TH PRIZE

A \$50 BLACK JACK from CIROPERIPHERAL CORP.

NEAT!

12TH PRIZE

A \$40 program called SECURE from SECURE SYSTEMS.

COMFORTING!

FIVE 13TH PRIZES

\$15 M-STRAPS by THE DON STEPHENS CO.

SIMPLE!

14TH PRIZE

A \$15 WORKSTATION 100 from A.R.M.S.

ORGANIZED!

THIRTY 15TH PRIZES

A \$5 pair of PROP-LEGS from KJM DEVELOPMENT.

PROPER!

16TH PRIZE

\$250 worth of connect time on the P100 ITT DIALCOM NETWORK.

INFORMATIVE!

Enough prizes for you? We've accumulated over \$6000 worth of quality ad-ons for your Model 100, so don't forget to enter. You could be a winner as easily as anyone.

And remember that all of these prizes can be purchased from the advertisers that donated them to our SWEEPSTAKES. Thanks guys!

YOU MUST ENTER TO WIN!

There's never been a lineup of support prizes for your Model 100 like this before. But, to win, you must send your entry form in by November 1, 1984. Take a minute to fill out the entry form below and send it off to us TODAY! You may win.

BE A WINNER WITH PORTABLE 100!

You can be a winner just by entering your trial subscription to **PORTABLE 100** along with your entry card. First, you SAVE 33% off the **PORTABLE 100**'s newsstand price if you subscribe NOW! Second, because **PORTABLE 100** will keep you up to date with the latest Model 100 developments every month. Start saving on your subscription today! 33% off the newsstand price on the best and only magazine dedicated to the Model 100 is a great value.





OFFICIAL RULES

No purchase necessary

1. On an official entry form or a 3x5 postcard, hand-print your name, address, zip code and telephone number. Enter as often as you wish, but each entry must be mailed separately to **PORTABLE 100 SWEEPSTAKES**, 15 Elm St., Camden, Maine 04843. Entries must be received no later than November 1, 1984. The drawing will be held on November 5, 1984. All entries become property of **PORTABLE 100** which reserves the right to reprint the names and addresses of the winners.

2. Winners will be selected in a random drawing from among all the entries received under the supervision of the publishers of **PORTABLE 100** whose decision will be final. All the prizes listed in the SWEEPSTAKES announcement will be awarded. Winners will be notified by mail and may be required to execute affidavit of eligibility and release. Odds of winning will depend on the number of entries received. **PORTABLE 100** will arrange for delivery of prizes. Prizes will not be transferable. No substitutions or exchanges for prizes.

3. Sweepstakes open to all residents of the US, its territories and possessions, except employees (and their families) of Computer Communications, Inc. its affiliates and its promotion agencies. Void where prohibited or restricted by law.

4. For the names of the winners, send a stamped, self-addressed envelope to **PORTABLE 100 SWEEPSTAKES**, Computer Communications, Inc., 15 Elm St., Camden, Maine 04843.

COMPLETE THE COUPON ON RIGHT OR USE THE CARD BOUND IN TO PAGE 64.

OFFICIAL ENTRY FORM PORTABLE 100 1984 SWEEPSTAKES

☐ **YES!** Enter my name in the **PORTABLE 100 SWEEPSTAKES** and send me a one-year subscription for just \$24.97.

☐ \$24.97 check enclosed ☐ Bill me
☐ Charge \$24.97 to my ☐ VISA ☐ Mastercard
 Card # _____ Exp. _____

Signature _____

☐ **NO.** I do not wish to subscribe, but tell me if I've won a prize in the sweepstakes.

Name _____
 (please print)

Address _____

City/State/Zip _____

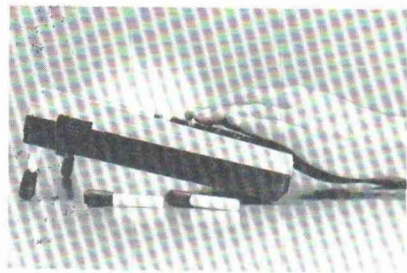
Phone _____

Offer valid only in the US, its territories and possessions. Please allow 4-6 weeks for delivery of the first issue if you decide to subscribe.

NO PURCHASE NECESSARY TO WIN



PROP LEGS



- Elevate your Model 100 to the proper angle for use
- Slip easily into rear screw holes in case
- Snug fit
- Non-skid rubber feet
- Durable plastic legs
- Handy — your Prop Legs fit in your pocket!
- Only \$5.00/pair

Includes shipping, handling, & CT residents sales tax.

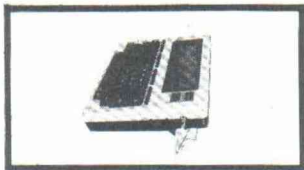
Send check or money order to:

KJM Development

P.O. Box 698, W. Hartford, CT 06107
DEALER INQUIRIES INVITED

Circle No. 57 on Reader Service Card

POWER PROP



- ▲ Uses D size batteries that last longer than AA size
- ▲ Totally portable power supply
- ▲ Longer use away from AC source
- ▲ Less costly to use than built-in batteries
- ▲ Provides adjustable viewing angle

\$12.95 each 3 or more \$9.95 each
add \$2.50 postage & handling

TN residents add 7.25% sales tax
N.O.C.O.D.'S

Please allow 4 to 6 weeks for delivery
(Batteries not included)

WAGONER INNOVATIONS

P.O. BOX 330
COOLTEWAH, TN 37363

annoying that I was eventually forced to switch everything to a larger cover, cribbed from another program.

The four programs on Project Manager are:

- **PRJMGR.BA** — the data gathering and organizing routine. This is used to set up the structure of your project and to record charges as time goes on;
- **PM-RPT.BA** — the report generator. Creates several types of tabular reports, plus a schedule report with limited graphics;
- **MEMMGR.BA** — the memory manager supplied with several other Traveling Software products; and
- **DATMGR.BA** — which works with Project Manager's data files, selecting and combining information to create new files for the user's own reports. This is also useful as a simple, general-purpose data-file manager file.

Only the first two, which I'll discuss in this review, are strictly necessary for Project Manager's operation.

You can have only one or the other in RAM simultaneously. PRJMGR and PM-RPT require more than 14K of storage each, and still more space must be reserved for the data files which the system creates in operation.

PRJMGR.BA. In Project Manager, a project consists of major divisions called activities which in turn are divided into tasks. Each activity and task is identified by a cryptic three-character code, but during the project definition phase you also may record remarks (up to 24 characters in length) to jog your memory.

Expenses and other units of value such as man-days are charged against specific tasks; the program keeps track of which task belongs to which activity, and performs the necessary summations when status summaries are called for.

Before you go anywhere near the 100's keyboard to use Project Manager, you'd be well-advised to spend some time planning your project on pencil and paper.

This is essentially a system for keeping score, and the manager must have the structure of the project firmly in mind before using it. You should sketch out the tasks belonging to each activity, as well as the estimated start and finish dates and budget for each task.

Project Manager doesn't solve problems of project organization, although it may reveal some of the pitfalls in a

THE SOLUTION TO CHECK CONTROL CHEQUE WRIGHT

- Quickly find your current balance
- Easily reconcile your account
- Sort on any field
- Works with an 8k machine
- Reports formatted for the display
- Reports formatted for the printer
- Your data can be located from and saved to rs-232 modem, and cassette

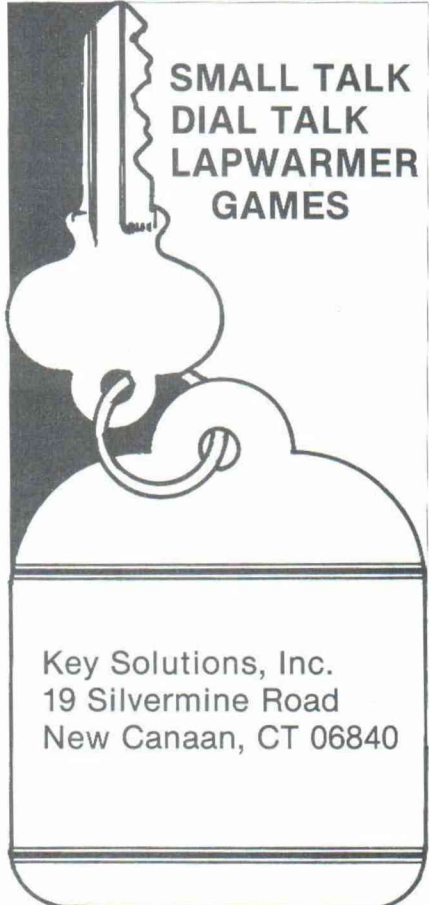
\$19.95

MICRO HELP

4009 Pacific Coast Hwy
Torrance, Ca. 90505

SHIPPING AND HANDLING IS INCLUDED
CA RESIDENTS MUST ADD TAX.

**SMALL TALK
DIAL TALK
LAPWARMER
GAMES**



Key Solutions, Inc.
19 Silvermine Road
New Canaan, CT 06840

Circle No. 75 on Reader Service Card

CHATTANOOGA CHOO CHOO SOFTWARE

Your One Stop Station Track 29
For Computer Programs

BUSINESS

*Skyline Software

Tele-Stock - investment management
(24K) ~~\$59.95~~ \$56.95

PortaTax - tax planning program
(32K) ~~\$90.95~~ \$94.95

*PortaCalc - Electronic spreadsheet
PortaPrint & PortaDex included
(24K) cassette ~~\$69.95~~ \$66.45

*PortaStat - statistical package

*PortaMax - linear programming

*PortaFin - loan & investment pkg.
(24K) ~~\$44.95~~ \$39.95 ea.

Portable Computer Support Group

Businesspak++ includes:

Invoice, Financ, Telex++, Calndr,
Type+, Brkevn

6 cassettes (8K) ~~\$89.95~~ \$85.45

*Data+, Tenky+ (8K)

~~\$59.95~~ \$56.95 ea.

Sort+ (8K)

~~\$29.95~~ \$28.45

Tutor+ (8K)

~~\$39.95~~ \$37.95

*Chattanooga Systems Associates

Book-Bookkeeping,

Tfile-Tape File Management,

Check-Checking Account Record,

Trip-Expenses

(8K) ~~\$29.50~~ \$28.00 ea.

Auto Pen-Word Processor

Formats & prints from text files.

(8K) ~~\$29.50~~ \$28.00

Expanded Autopen (version 4.1),

Plus version 4.0

NEW! Auto Calc
~~\$29.50~~ \$37.50

Celestial Software

Navigation Pac - seven programs:
for Sailing (8K) ~~\$19.95~~

Astronomy Pac - Star identification

Complete with software,

astrolabe, Silva compass and book.

(16K) ~~\$59.95~~

Software and instructions Only

~~\$39.95~~

P.G. DESIGN

8K RAM MODULES

~~\$64.95~~ \$59.95 ea.

NAVComp

2 Aviation programs

in 1 package

Flight Planning

and Realtime Navigation

(16K) ~~\$49.95~~

Prickly-Pear Software 10% OFF

Viking - (24K) simulation game

Football Quarterback Strategy

(16K) ~~\$24.95~~ \$21.95 ea.


* Available for NEC

Personal checks and

PURCHASE ORDERS WELCOME.

Please add \$2.00 for shipping

in the U.S.A.

 Tennessee residents
add 7.25% sales tax.

C.O.D. orders add \$2.00.

Send for FREE catalog!

(615) 875-8656

P.O. Box 15892

Chattanooga, TN 37415

Circle No. 60 on Reader Service Card

specific plan after you begin working with it.

Project Manager uses several data-entry screens with predefined formats. Some fields aren't meant to be filled in by the user. They're often used for the sums of entries made on other screens and so the cursor skips over them.

That eliminates one possible source of error, but beware: cursor motion can be slow, and it's possible to lose track of where your next entry will be made. When in doubt, wait for the blinking block to show up at the beginning of a field.

DATA FILES. The program creates four data files:

- PMACT.DO — code names and descriptions of activities, along with the name of the project where each belongs;
- PMTSKD.DO — code names and descriptions of tasks;
- PMTASK.DO — scheduled start and finish dates and budgets for each task; and
- PMEXP.DO — dates and amounts of actual expenditures.

As I've suggested, the same files are used for all projects; sufficient information is stored to allow the system to keep track of the proper home for each entry. If you only have one project, you'd be wise to purge unwanted data from RAM to conserve memory and speed up sorting operations.

Project Manager's opening menu provides four options: define a new activity or view an existing one, define or view tasks, add or update expenditures, or view summary reports.

After you make your choice there's a delay of several seconds before the next-level display appears. For the first three options, this is a blank, formatted data-entry screen. The fourth is a subsidiary menu.

DEFINE ACTIVITIES. Let's start with the first option.

Whether you add a new activity or view an existing one depends on what you do when the blank form shows up. When you're setting up a new project, you have no choice but to type in certain activity-definition information. Once there's some information in the data files, the bottom of the display comes alive with labels for some of the function keys. Then you may choose to view an existing activity description, move to the next or previous one, and so on.

AUTO PLOT for the TRS-80

MODEL 100 (16k +)

and the CGP-115 Color Graphic Printer

A picture is worth a thousand words. Now you can produce color graphs of professional quality effortlessly in minutes wherever you go. Plot tabulated data or functions. Choose from line graphs, scatter plots, bar graphs and more. Axes are automatically scaled and labelled. A few keystrokes select from many options, such as plot size, continuous curves and/or separate marks, multiple curves, optional grid overlay, linear or log plots, numeric integration or differentiation. . . . A label-maker program lets you add fancy titles or legends. AUTO PLOT is written in BASIC and comes on cassette, together with an exceptionally clear 28-page manual.

Why such a small ad for such a fantastic program? By keeping down our overhead, we can offer you AUTO PLOT at the unheard-of introductory price of \$49.50

Also available:

AUTO PLOT for TRS-80 Model I/III (48k, 1 disk and CGP-115...\$69.50

AUTO PLOT for TRS-80 Model I/III and EPSON printer with Graphtrax...\$79.50

AUTO PLOT for LN-W80 (+ Hi-Res video graphics)...\$99.50

Please add \$3.00 for shipping and handling CA residents please add sales tax. Phone orders. VISA and MASTERCARD welcome.

MENLO SYSTEMS

3790 El Camino Real, Suite 221
Palo Alto, CA 94306, Tel (415) 856-0727

TRS-80, CGP-115: TM of Tandy Corp.

Circle No. 62 on Reader Service Card



SURVEY.100

- PORTABLE SURVEY SOFTWARE FOR MODEL 100
- COGO ROUTINES FOR CLOSURES AND STAKE OUTS
- FIELD NOTE REDUCTIONS
- SUBDIVISION CALCULATIONS
- POINTS NUMBERED 1-999,999
- COMPLETE TELECOMMUNICATIONS RECEIVE DATA/SEND RESULTS

CASSETTE DISK or MODEM
VISA/MC **\$125⁰⁰**

SURVEY SOFTWARE ASSOCIATES

4 MAHER AVENUE
GREENWICH, CONN. 06830
203 661-4869

VCALC: A FULL MULTI-FUNCTION SPREADSHEET FOR THE MODEL 100

- 99 ROWS OR 26 COLUMNS
- USER SELECTABLE OPERATION FOR STAND-ALONE OR WITH VIDEO/DISK UNIT
- 8 X 40, 25 X 40, OR 25 X 80 DISPLAY OPTIONS (VIA LCD OR CRT)
- SPLIT SCREEN CAPABILITY
- LINK MULTIPLE FILES TOGETHER BY EQUATING CELLS WITHIN DIFFERENT FILES
- AUTO-ADVANCE FEATURE TO MOVE CURSOR FROM CELL TO CELL DURING TEXT ENTRY
- MULTI-FILE MERGE CAPABILITY
- CURSOR MOVEMENT — UP, DOWN, LEFT, RIGHT, GO ANYWHERE
- DATA ENTRIES FOR NUMBERS, LABELS, AND FORMULAS
- FULL ARITHMETIC FUNCTIONS WITH ROW/COLUMN SUMMATION AND AVERAGING
- TEN LEVELS OF PARENTHESIS
- REPLICATE FORMULAS
- INPUT/OUTPUT FROM/TO CASSETTE, DISK, RS232, TEXT FILE, OR MODEM
- INSERT OR DELETE ROWS OR COLUMNS
- ON-LINE HELP FILE (OPTIONALLY REMOVEABLE)
- AVAILABLE ON DISK OR CASSETTE W/FULL DOCUMENTATION
- REQUIRES 32K (FOR REASONABLE USE)
- COST: \$59.95

SEND CHECK OR MONEY ORDER TO:

ProSoft Enterprises
457 Ilimano Street, Kailua, HI 96734 (808) 254-2622
(Hawaii residents please add 4% sales tax)

Portable 100 is a "user specific" magazine.



100 percent of our readers are avidly interested in the Model 100 and its peripherals. There is no waste on readers buying the magazine with intentions other than learning more about the Model 100 and the products that support it.

The Model 100 market is still in its infancy, but growing every day! Come grow with it! Contact Peter K.J. Montross, Advertising Director, Portable 100, P.O. Box 250, 15 Elm Street, Camden, Maine 04843 (207) 236-4365.

This is typical of Project Manager operation. The options available at any time depend on the status of the information already entered, and inappropriate function keys simply don't receive labels.

A word about the concept of next and previous activities and tasks: Project Manager arranges its data files so these entries are stored in alphabetical, not chronological, order. The manual mentions this, but then sidesteps it by using a sample project with three phases with their names in alphabetical order.

This characteristic method of storage can be disconcerting when you're browsing through a file, and even more so when reports are printed. It tends to obscure the logical flow of a project and makes it more difficult to pick out the critical path by inspection.

It shouldn't be terribly hard to change the ordering criterion. The program already converts all dates from the MMDDYY format in which they're entered to YYMMDD style, ready for sorting. Perhaps a future version of Project Manager will have the ability to arrange activities and tasks in a time sequence.

DEFINE TASKS. Once all project activities have been set up, it's time to move on to task definition. This is similar to the previous phase, except estimated start and finish dates, and the budget, must be furnished. (The program will later take the earliest start date for any task within a given activity as the actual start date of the activity itself, and so on.) Task budgets may be expressed in dollars, units, or both.

Entering budget figures and subsequent expenditures can be confusing, and it pays to work with a sample task or two until you get the hang of things.

Two function keys play critical roles: F7 serves as the units/\$ switch, determining whether the program interprets the entry as a dollar value or as the number of other units of measurement, and F1 saves the entire entry in a RAM file.

If both types of entries are to be made for a given task, the dollar figure should be entered first (the active selection is highlighted in reverse video on the label line). After it's keyed in and terminated by the enter key, F7 is used to switch to units mode. The second budget number is then keyed in and entered.

According to the manual, you're now ready to save the whole task by pressing F1; however, I've found it best to press F7 once again before doing so. Otherwise, the units figure may not be recorded. In fact, even if you're only budgeting in terms of dollars you should enter the number, press F7, and then press F1.

This takes some getting used to, and the process isn't helped by the fact it takes several seconds for the blinking cursor to return after each units/\$ changeover.

Fortunately, the 100 lets you check your work by leaving PRJMGR and examining the data in the document files directly. You can make changes on the spot using TEXT, but that's not recommended because of the possibility of doing real damage through a minor slip up.

An appendix to the manual guides you through the structure of the document files, although you won't need it for long; the structure is pretty simple.

EXPENDITURES. Once all the tasks have been entered, Project Manager is ready to work.

The idea is the PRJMGR program should be kept in RAM and expenditures entered as they're incurred (at the end of each day or week, for example), using the third of the main menu's options.

The process is similar to that of budget entry, complete with F1 and F7 keys, although the manual's instructions seemed to work better for me than they did in the earlier process.

Suppose an expenditure has been recorded for a task. To make another entry for the same piece of work (for a subsequent working day, for example), you just fill in a fresh add/update expenditures screen. In other words, you actually create another record in the PMEXP file. All entries for a given task will be summed when you call for Project Manager's summary option.

All the task-budgets and expenditures you record are totaled for each activity whenever an expense summary is called for.

This probably accounts for some of the time required for the program to respond to such requests, but it also guarantees the results will be up to date without any further effort in the user's part. It economizes on storage, too, since the totals aren't saved with the data files.

MODEL 100 CASINO VIDEO POKER GAME



*Just like a video poker machine!!
Deal, discard, and draw new cards.
Records your bet and tallies up winnings.
Displays actual cards and suit.
Good graphics and music too.*



You will be addicted! So will all your family and friends!



Cassette and instructions: **ONLY \$24.95!!!**



Send money order — we pay U.S. postage — to

Hedelund Engineering • P.O.B. 26044, Las Vegas, NV 98126

NAVIGATORS - STUDENTS - STARGAZERS

```
DA 08/25/1985
UT 19:23:41
LA 42°50.6'N
LO 070°28.8'W
FU 100° MA 2.1
ID Polaris
AZ 359°38.2'T
AL 042°04.8'
```



ASTRO creates a display of the sky, as you look at it from any place on earth, for any date and time. ASTRO quickly computes the apparent positions of 179 celestial bodies including the Sun, Moon, planets, and navigational stars. You identify any star or body simply by moving the cursor onto it; ASTRO shows name, magnitude, azimuth, and altitude. Manual & Cassette for 24K TRS-80/100.

**\$39.95 + \$2.00 shipping; Visa, MasterCard, or check
Loquor Enterprises, 3 Heneage Lane, Hanover, NH 03755**

Circle No. 65 on Reader Service Card

8K RAM

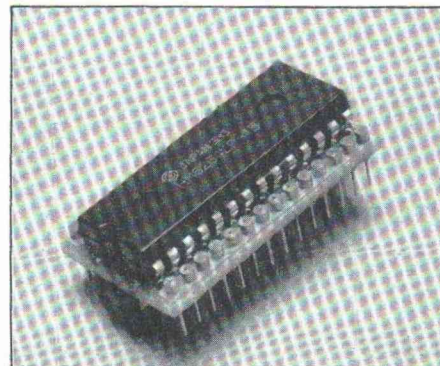
MEMORY
MODULES

**EXPANSION RAM FOR
TRS-80 MODEL 100,
NEC 8201 AND OLIVETTI M10
PORTABLE COMPUTERS**

\$64.95 Each/3 or more \$59.95 Each

- Exact replacement ■ Easy to install
- Installation instructions included
- High quality manufacturing ■ warranty included
- uses 50% less back up power than other chips

DEALER INQUIRIES WELCOME
TRS-80 IS A TRADEMARK OF TANDY CORP.



**P.G.
DESIGN
ELECTRONICS, INC.**

66040 GRATIOT, RICHMOND, MICH. 48062 • (313)727-2744

Circle No. 66 on Reader Service Card

There's a nice degree of interaction between Project Manager and the 100's operating system.

For example, the program uses the current date as the default for several purposes—including that of reporting the date for which an expenditure is being recorded.

Remember the date of the first expenditure for an activity and tasks will be used by the program as the actual start date for that piece of the project. Therefore, you should be careful when recording things after they've actually occurred.

There's no sense making your performance look worse than it actually is, so it may be necessary to skip the default and enter the actual date of an expenditure by hand.

FINAL POINT. I'd like to make a final point about Project Manager's task reporting system. As the manual points out, it's perfectly feasible to use the same task code under several activities.

I've used this to advantage in managing some of my small projects, in which an individual's time may have to be di-

vided among two or more phases of the work at once. The trick is to use my people's initials as the task codes; thus the projects are actually broken down into one level of technical detail, the activities.

Figure 1 shows how this worked for one of my projects: the setting up of a new semiconductor-research laboratory. The report, called a Project Outline, is one of the canned formats available from the PM-RPT program.

I show the first two activities, the actual lab construction work and the installation of a so-called MBE (molecular beam epitaxy) system for semiconductor growth. For the most part, the task codes I used are the initials of project scientists and technicians. Notice two of them, JPS and JVG, worked on both activities.

Although this report doesn't show it, the activities actually overlapped in time. This kind of split-effort situation frequently crops up in my projects, and it's very handy to be able to use Project Manager to cope with it.

I've used higher-priced programs on much larger personal computers that

couldn't do as much. Of course, it's still up to the manager to set the schedules and task budgets so as to account for only 100 percent of a person's effort altogether!

VIEW SUMMARIES. The final item on PRJMGR's main menu is the view summaries option.

There are four summaries in all: you can elect to see expenditures totaled for each task, each activity, each project, or all projects together. Whichever you choose, there'll be one display column devoted to the budget and another for the actual expenditures. Dollars or units of work can be selected for the display scale.

As the name suggests, the summaries are handy for quick status reports. They do have a few drawbacks, though.

To begin with, they're only available on the 100's display. There's no print option. You have to use the PM-RPT program for hard copy.

In addition, Project Manager can't give you the summaries unless a certain amount of RAM is available. At one point in my own work, I was chag-

PORTABILITY



\$59.95

(Add \$2.50 shipping & handling per case in the continental U.S.)

MADE COMPLETE

The **Chip-Tote™ PCD-1** makes your TRS-80 Model 100 or comparably sized briefcase portable truly complete. It's the first light-weight soft case that doubles as a desk.

The **Chip-Tote™ PCD-1** is constructed of rugged Cordura® nylon and our special closed cell foam, so you can be sure your computer and its accessories will get the maximum in protection. So next time don't leave the office behind—carry it with you!

YES, send me: _____ PCD-1(s) in _____ Black _____ Smoke Grey

Name _____

Address _____

City _____ State _____ Zip _____

Signature _____

☐ CHECK/MO (CA res. add 6% tax) ☐ C.O.D. (Add \$1.65)

☐ M/C ☐ VISA _____ Exp. _____



KANGAROO VIDEO PRODUCTS, INC.
10845 Wheatlands Ave., Suite "C" • Santee, CA 92071-2856 • (619) 562-9696
ENGINEERED CASES FOR SENSITIVE ELECTRONIC EQUIPMENT

the Black Jack™

A NEW PORTABLE
MODULAR JACK FOR MODEMS



Have you ever been dealt out of telecommunications in hotels, offices and other places on the road? Why gamble on finding a telephone jack that will accept your modem. Deal yourself a winning hand with **the Black Jack**.

Simply unscrew the mouthpiece together with the microphone and carefully set them to one side. Attach **the Black Jack** on the handset, insert your RJ11C direct connect line cord from your modem and you're ready for action. You may now dial direct from your computer if your modem has Touch Tone® dialing.

If not, simply dial from the telephone itself. When your telecommunications are complete, snap off **the Black Jack** and replace the mouthpiece.

Price: \$49.95.

For enduser orders contact: 1-800-227-3800 Ext. 245.

For dealer inquiries and

OEM information contact:

the microp peripheral corporation

2565 - 152nd Avenue NE, Redmond, WA 98052

™the Black Jack is a trademark of The Microp peripheral Corporation. (206) 881-7544

nined to receive an out-of-memory error indication with over 3800 bytes still free. Nevertheless, the summaries can be nice to have.

PM-RPT.BA. In contrast to PRJMGR's summaries, the PM-RPT options are all hard copy reports. They can't be reviewed on the LCD screen.

I've already mentioned the Project Outline; other PM-RPT options are:

- **Summary report** — which compares your actual expenditures with the budget on a task-by-task basis. Expenditures are shown as dollars, units, or both, depending on how you entered your data. All figures are totaled for each activity and project as a whole, and deviations from budget are presented in both absolute terms and as percentages.
- **Detail report** — In case the summary isn't explicit enough for you, the detail report lists every single expenditure for every task. The date of each is reported, along with any comments you may have entered when keying in

the information. Again, there are sub-totals and totals at the task, activity, and project level.

- **Schedule report** — Those of us who aren't financial wizards often find a graphical presentation of project status most helpful. The schedule report provides a table of estimated and actual stand and end dates, along with a bar graph showing the duration of each task. This is similar to the Gantt chart familiar to all project managers. An example is shown in Figure 2; the "e" represents the original estimates of task duration, while the "a" shows things as they were actually reported.

- **Close-out expenditures report** — This closes out detailed expenditure records so only summaries remain. The primary purpose of the option is to release some RAM for further use; you can continue to add new expenditures, of course. Subsequent project detail reports will show a total of the closed-out expenditure for each task (with earliest and latest dates), along with the whole story on any expendi-

tures recorded since the close-out.

LAST WORDS. Traveling Project Manager can do a very competent job of tracking project costs. There are a few sticky points which I've tried to point out: the need for caution during the entry of dollar and unit expenditure information is certainly one. Operations can be rather slow due to the use of Basic and the need to compute many totals each time Project Manager is run.

I for one would also like to encourage the vendor to rework the sorting algorithms. It really should be possible to order tasks according to their starting dates, instead of their three-character codes. That'd make it easier to judge the critical path through a project.

Despite these criticisms, I enjoyed working with the Project Manager package. It does a particular job in a way that's helpful to me, and it makes intelligent use of the 100's features while doing so. This isn't trivial software, but neither is it intimidating; harried project managers should check it out. ◀

MARINE NAVIGATION

With **DIGITAL NAVIGATOR** you can readily utilize the power of today's most popular notebook computers to perform otherwise time consuming calculations. Programs utilize the large LCD display for complete input and output presentations. User friendly routines have extensive input checking and support optional printed output. Interactive data files eliminate tedious re-entry of data.

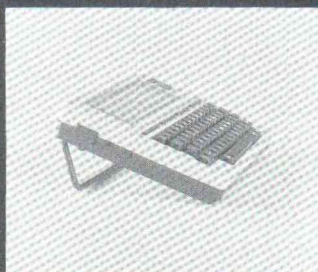
DIGITAL NAVIGATOR includes: Planning routines for Rhumb Line and Great Circle Sailing with Longitude Intercepts, Incremental Distances, and Limiting Latitudes. Celestial routines include Nautical Almanac information for Sun, Moon, Venus, Mars, Jupiter, Saturn, and 58 Stars with navigational accuracies to the year 2100; Complete Sight Reduction with Fixes determined from Noon Sight, two or multiple LOP's; Sunrise and Sunset celestial positions for pre-sight planning. Plane Sailing routines for numerous Vector solutions, automatic Dead Reckoning updates, Course & Speed Made Good, and Distance to Object.

All features extensively presented with examples in bound manual. Programs utilized by Recreational and Merchant Marine personnel.

Order **DIGITAL NAVIGATOR** (Cassette and Manual) by sending \$67.75 (CA Residents \$72.15) via VISA/MC, Check, Money Order or COD. Specify Computer as TRS-80 Model 100 (24K) or NEC 8201A (24K).

PACIFIC MARINE CORPORATION
Dept. W
2410 E. 5th Street
Long Beach, CA 90814
(213) 433-7815

THE PORTA STAND



Improved Viewing Angle
Improved Typing Angle
PORTABLE - Can be carried
in your MOD 100 pouch
VERSATILE - Can be used
on lap or desktop.
For MOD 100 or NEC 8201

Send check or money
order for \$12.95 plus
\$2.00 shipping and handling
to: **PORTA PRO**
P.O. Box 15456, Denver, CO 80215
dealer inquiries invited

ADDRESSER

No labels! Personalized, easy to use. Addresses business & personal letter heads, long & short envelopes, with an option to skip return address. Uses addresses stored in "ADRS. DO" file.

\$25.00

SPELLER

Corrects spelling & typographical errors of "TEXT. DO" files.

\$40.00

PSYCHI

An expert system which writes psychiatric evaluations

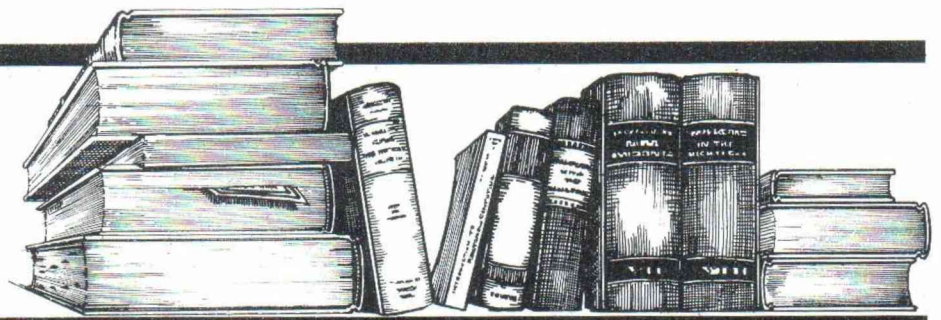
\$50.00

All programs come on cassettes with documentation

SOFTMATE

P.O. Box 15157
Portland, Or. 97215-9998
(503) 238-1490

BOOKS



PSYCHOLOGISTS SAY GAMES MORE THAN MEETS MIND

Mind at Play: The Psychology of Video Games

Geoffrey R. Loftus and
Elizabeth F. Loftus
Basic Books Inc.
10 East 53rd St.
New York, NY 10022
212-207-7083
191 pages
\$14.95, hardcover

By NANCY L. LAITE

When anthropologists look back on the computer-oriented 1980s, one lifestyle sure to be cited will be the arcade subculture. A new community, mostly made up of contemporary youth, is breeding this social phenomenon and causing quite a stir among parents, educators, and government officials. It's this offspring of the computer age who are analyzed in, *Mind at Play: The Psychology of Video Games*.

Authors Geoffrey R. Loftus and Elizabeth F. Loftus are well-qualified to write about the video craze. Both are cognitive psychologists and professors of psychology at the University of Washington. Their pioneering book is one of the first to study video games and their findings illustrate why the games are so fascinating, how they affect us as individuals and as a society, and what their place is in the future. Some of the Loftuses' studies go so far as being a rescue mission for the misunderstood Pac-Man and his friends.

PSY-TECH INTRO. *Mind at Play* is an easy-to-read introduction to psychology as well as computer technology. As a one-time psychology major, I found their application of psychology terms to the video craze a unique marriage. Linking the basic appeal of video games

to the principle of reinforcement, the Loftuses maintain the games provide the right balance of feedback to keep players challenged, rewarded, and consequently, still playing.

If hooked video players wonder why they keep spending "just one more quarter" at the arcades, the authors explain that by the games' exploitation of our need for cognitive consonance: the player tells himself he enjoys playing the games, perhaps more than he really does, in order to justify the time and money spent on them. They contend there's subliminal conditioning going on each game played — getting addicted is easy.

One doesn't have to agree with the pair of psychologists to appreciate their book. Out to shake down the myth that video games are corrupting the minds of today's younger generation, they argue that arcades serve the same socialization process the hamburger joints and boardwalks did in the past. Players have a place to meet, share a common interest, and compete. Although it's noted the community is rather lopsided: a lot more males than females play and players sometimes interact with their machines as much as with one another.

JUST FOR FUN? The crux of the book is the question: Are the games good for anything but entertainment? Although there's little empirical research on the subject, the Loftuses discuss the question at length. Much of their theorizing is based on studies done on the effects of television watching. The Loftuses draw many parallels between television and the games, quoting studies showing electronic games have an outstanding potential as tools in education, and psychological and physical therapy. There's an urgency, they say, for more experimenting in this area. As happened with television research, the significance of video game effects will be hard to ascertain in 10 years if no control group is established now.

Concerned parents can be comforted by the Loftuses' words. If their adolescent is spending all of his or her spare hours and spare change at the arcades, the Loftuses say he or she is actually prepping for the coming work force where a knowledge of computers will be essential. The authors support their opinion with examples where teen-aged-video maniacs grew up to be programming wizards. In fact, they note, the United States military is looking at the games. Due to the eye-hand coordination they teach, video games could be a means of training gunners and navigators.

However, moderation, like in anything else, is important. And in chapter 4, *The Arcade Subculture*, the authors borrow three criteria from their field to outline clues for game addiction detection:

- Is the behavior good for the person?
- Is the person in touch with reality?
- Is the person's behavior markedly different from the norm? The trick here, of course, is defining the norm!

SUBTLE POWER. In chapter 5, *Learning from the Screen*, the Loftuses continue their use of television as a model for investigating the influence of video games on our culture. Here they say, "Educators have been trying to harness the astonishing motivational power of video games by designing educational computer games that resemble their arcade counterparts."

"But a potentially more difficult problem will be to persuade game makers to insert educationally beneficial elements into the popular arcade games." It's the authors' hope those same groups trying to ban video games will instead subsidize game designers, encouraging them to develop ones with educational and therapeutic merit.

Chapter 6 concludes the book with a layman's guide to computer history and principles. A well-laid out index follows.

Mind at Play is fun, informational reading. It gave me insight into the mysterious activities at the neighborhood video hangout. Although, as a parent, I still am not convinced the hours and money spent by youngsters at video games is entirely healthy, the Loftuses have showed me it's not time completely wasted. The authors challenge each of us to make better use of the new electronics. ◀

TROUBLESHOOTING CAN KEEP DOWN REPAIR BILLS

How to Maintain and Service Your Small Computer

John Stephenson & Bob Cahill
Howard W. Sams & Co.
4300 West 62nd St.
Indianapolis, IN 46268
206 pages
\$17.95, softcover

By TERRY KEPNER

Are you worried about the high cost of computer equipment repairs or finding a competent technician? Or do you think you could do the repair work yourself, with a little help? Well, if any of these express your feelings, there's a book for you: *How to Maintain And Service Your Small Computer*, by Stephenson and Cahill, an 8-inch-by-11-inch manual.

BUT NOT FOR 100. The Model 100 is too delicate for any but the best technicians to attempt to repair. The CMOS chips require special care and tools, and the parts are so closely packed that many Radio Shack technicians don't like to work on it.

In fact, the local computer centers don't even attempt to repair 100s. They remove the errant board (key-board, display, or main PCB) and order a new one from National Parts. The old board is then sent to a special repair center in Texas where experts troubleshoot it and try to repair it.

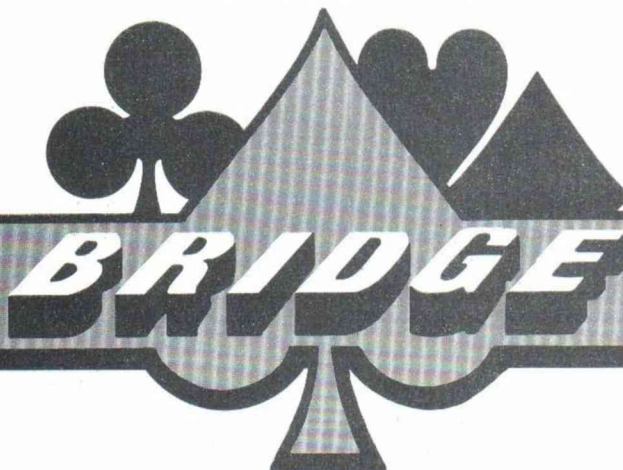
However, the rest of the equipment you use (printer, disk drives, and power supply) are all fairly easy to diagnose and repair when they fail. If you're using a second computer to store data, text, and/or programs, you'll certainly find this book useful in maintaining the second computer.

Bidding All Bridge Players

From the Publishers of
Sky Raider and Mind Master



PRESENTING



Discovering you can play contract bridge ANYTIME against your Model 100 is heaven-sent. The program handles the bidding, actual play of hand and scoring. Whether you're a seasoned bridge player or just a beginner you'll find bridge to be a formidable opponent as well as an excellent tutor, to one of the world's most popular card games.

Send check, money order, or VISA/MC number for \$19.95. For immediate delivery call our 24 hour hotline, or use our Compuserve® Email number for information or credit card orders. Compuserve® is a registered trademark of Compuserve Inc. and H & R Block Company.



Dept. PI, P.O. Box 1157
Elizabeth City, NC 27909
Phone: (919) 338-3202 or
(919) 338-2027
Email: 75735, 1440

Dealers Inquiries Welcome
Please add 2.00 shipping and handling. NC residents add 4.5 sales tax.

SIGNATURE _____

CARD NO. _____

NAME _____

ADDRESS _____

CITY _____

ZIP _____

STATE _____

EXP. DATE _____

☐ CHECK-M.O. ☐ MC ☐ VISA

OK Deal Me In!

Circle No. 72 on Reader Service Card

SERVICE PROFILE. Stephenson and Cahill's book assumes you have some knowledge of electronics, for example, that you know the difference between a resistor and a capacitor, and have some working familiarity with a multi-meter. If you don't know much about electronics, the authors provide a short list of suggested readings on the subject.

The book is divided into 12 chapters, starting with a general introduction as to why you might want to service your own equipment. It then goes into a service profile for:

- Electronics equipment — how and when most of it will fail;
- Your servicing options — dealers, mail-order, service shops, manufacturers, third-party, and self-service;
- The computer operating environment and reducing potential problems;
- Self-servicing skills, tools, and documentation;
- Troubleshooting strategy and techniques;
- Specific device troubleshooting — flip-flops, ROMs, RAMs, etc.;
- Troubleshooting disk drives;
- Printer problems;

- Main computer and keyboard troubleshooting;
- Modems, monitors, cassette recorders, and game controller problems; and
- Fixing power supplies.

At the end of the book are five appendices and an index. The appendices cover:

- Resistor color codes;
- IC Manufacturer coding systems;
- Mail order parts dealers, a partial list;
- Common computer IC pin-outs and base diagrams; and
- A troubleshooting chart.

RUDIMENTARY HELP. *How To Maintain and Service Your Small Computer* details the various computer components and their operational theories, providing you with enough information so you can readily understand how the system works and how to track down and isolate problems. And it does this without overwhelming you with too much information.

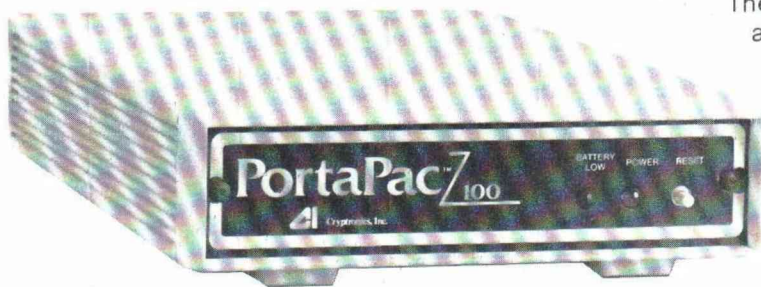
Overall, the book provides a solid basis in teaching you how to identify the problem area in almost any mal-

functioning piece of equipment. Stephenson and Cahill don't try to answer all possible questions or teach every method on troubleshooting equipment. They make suggestions on other books and manuals whenever they feel it's needed, such as in the section on servicing a monitor (which could take an entire book itself).

The main purpose of their book is to provide you with enough information to make an informed choice on either taking the equipment to a service technician for repair or doing it yourself. And if you should decide to have someone else fix the problem, you'll be able to at least give the technician an adequate description of the difficulty, and where the problem seems to be. This helps reduce the amount of time and money the technician spends looking for the fault. Too many people bring in a piece of equipment and say: "It's broken, fix it," leaving the technician to figure out what isn't working.

If you're at all interested in servicing your own equipment, get this book first. You'll find it well worth the purchase price. ◀

PortaPac™ 100



Priced at \$395.00 - 60K RAM
\$475.00 - 120K RAM
\$555.00 - 180K RAM
\$635.00 - 240K RAM

The PortaPac 100 is a solid state mass storage RAM disk for portable computers. Featuring its own operating system Porta Pac 100 communicates through the RS232C. It is portable thanks to memory backed by an internal rechargeable battery. The unit will recharge or operate from an AC adapter (included), automobile cigarette lighter*, or extra external battery*.

The PortaPac 100 can transfer files or programs to micro computers including those using MSDOS or CP/M. Up to 32 files can be stored per 60K of RAM. The lesser memory models can be expanded to 240K.

*optional

Please Send For Descriptive Literature

Registered Trademarks:

CP/M - Digital Research



Cryptronics, Inc.

11711 Coley River Circle, Suite 7
 Fountain Valley, CA 92708
 Phone: (714) 540-1174

Micro Demon brought you three sensational programs...

Here's four more!



PRO AID, DASM & Music

PRO AID - Still our number one product. PRO AID is a machine language program that adds many powerful features to your model 100. You get 26 new, easy to define, super function keys that can be used in TEXT and TELCOM as well as BASIC. You also get automatic line numbers, instantaneous deletion of any range of BASIC lines, a special calculator mode with new BASIC commands, immediate access to MENU programs, a program status key, and much more. PRO AID uses less than 1.8K of your memory, and can be located anywhere there is room. PRO AID comes with complete documentation.

DASM - A full featured disassembler. You can easily follow the logic of a program that contains many jumps and calls. During the disassembly process, you can inquire about such things as contents of memory, and the keyword for a given token. The latest version has a split-screen feature that allows you to review the previous 8 lines of disassembly.

Music - Using a modified SOUND routine, it becomes possible to hold a tone as long as a key is held down. This makes it possible to turn the model 100 into a musical instrument.

1 ASM - A Powerful 8085 assembler. ASM contains all the features you expect in an assembler as well as several features that are specific to the model 100. For instance, there is a built-in macro library that will simplify writing code. Among these macros are relative branch instructions for programs intended to be called from BASIC. ASM comes with extensive documentation, including lots of information on the ROM.

Example programs will help the novice get started with machine language programming. The perfect way to learn about machine language.

2 TEL PRO - A TELCOM enhancement. With TEL PRO you can remain connected to the phone line and still read the menu, kill files, read text files, upload BASIC programs (with .BA extension), download the screen, access the time, set an alarm, delete unwanted carriage returns from downloaded BASIC programs, and more. An excellent companion program for PRO AID.

3 Questn - Artificial intelligence with a sense of humor. Ask this program any question, and it will respond with a relevant, often humorous reply. Philosophical and personal questions are the best. A nice program to show off your computer. Requires at least 24K memory. Questn comes with a list of questions for those who have trouble thinking of something to ask.

4 Napoleon - It's you against the computer. In this card game from England, each player gets a bid and the high bidder tries to make his contract. The computer makes a worthy opponent. You can choose the computer's style of play.

Send mail orders and requests for information to Micro Demon, Inc., P.O. Box 50162, Columbia, SC 29250. Visa and Mastercard are welcome. Or, call our 24 hour order line, 803-733-0980.

Name _____
Address _____
City _____ State _____
Signature _____
Card Number _____ Exp. Date _____

Quantity	Product & Price	Total Price
	Pro Aid (\$39.95)	
	ASM (\$69.95)	
	Tel Pro (\$49.95)	
	DASM (\$29.95)	
	Questn (\$29.95)	
	Napoleon (\$29.95)	
	Music (\$19.95)	

**MICRO
DEMON, INC.**
P.O. Box 50162
Columbia, SC 29250

Paying by:	Total Cost of Items: (SC Residents Add 4%)	
<input type="checkbox"/> Visa	Shipping & Handling (Overseas is Extra)	\$1.50
<input type="checkbox"/> Master-Card	Total Amount Due:	
<input type="checkbox"/> Check		

continued from page 80

product necessitates balancing complex forces and there are no easy answers.

On one level you can look to successful products from established companies. Established companies are typically more reliable and the success of a product is at least one measure of its quality. Such products as Wordstar, Dbase II, or the IBM PC are safe products from this perspective.

Market superiority doesn't always or even often result from product superiority. It's plainly evident there are products as good or better than these safe products but aren't as successful yet.

It's my experience the safe products are just that: safer, not better. There's an entire industry of support mechanisms for Wordstar and the IBM, while there is virtually nothing for Victor and Spellbinder, which I regard as better and less expensive products. Products from lesser known vendors are often more sensitive to user needs, but often require greater user independence and confidence.

As far as the lap-portable marketplace is concerned, I don't believe the

primary manufacturers — Tandy, Olivetti, and NEC — offer better or more reliable support of their products than the myriad of small vendors now offering competing products. They should all be embraced with equal skepticism.

TECHNIQUE 4. Get it in writing!

Before you sign the dotted line, write down every representation the dealer made that was significant to you in buying the item. Be mindful of training, support, and service.

Remember, most oral representations made by a dealer are not enforceable if they are excluded from a subsequent written agreement.

Also remember, when you finance or lease through your dealer, most agreements provide that the dealer's failure to live up to the agreement does not relieve you from having to pay the bill.

The rule of thumb here is simple: If a dealer said it, and it's important to you, insist that it be part of the written agreement.

TECHNIQUE 5. Learn simple programming!

Until you learn how to program you will always be at the mercy of the computer marketplace and a victim of the computer revolution.

Complex and sophisticated programming is not necessary; the rudiments are sufficient. Once you have them, the dynamic between you, your computer, and the rest of the world markedly changes. The main difference is, you are in charge. A Model 100 to someone totally reliant on commercial software has only a fraction of the power, versatility, and value it has to someone with programming knowledge.

A few weeks ago, I walked into the local video rental store as the owner started making 4000 slips of paper for a contest he was having. I happened to have my NEC with me and in 10 minutes, I had written him a program to randomly select the winners.

The software isn't in line for program of the year, but it quickly solved an everyday problem without resorting to commercial software.

Once you can program, the possible applications are endless. You're crazy not to learn!



Advertisers Index

PG	RS	Advertiser	PG	RS	Advertiser	PG	RS	Advertiser
50	34	A&J	4	5	FACS	38	25	P.C.S.G.
75	72	Alpine Data Systems	51	37	Fort Worth	15	12	P.C.S.G.
23	18	American Micro Products	27	20	Great Oak	70	63	ProSoft Enterprises
21	17	ARMS	71	31	Hedlund	39	26	Purple Computing
52	38	Avion	57	45	Holmes Engineering	31	23	Quasatronics
18	14	Axonics	13	11	Humphrey Industries	54	40	Radial Concerns
3	4	Bluestem	55	41	IRD	40	27	Radio Shack
70	64	BPS	72	67	Kangaroo	64	55	Radio Shack
11	9	Buddy Systems	62	53	Kensington Micro	50	35	Secure Systems
8	7	Cabbage Cases	79	75	Key Solutions	51	36	SIGEA
60	49	Canada	68	56	KJM Developments	61	52	Skyline Marketing
55	43	CAPS	71	65	Loquor	12	10	Southworth
69	60	Chattanooga Choo Choo	60	50	MAK	45	29	Staware
48	32	Chattanooga Systems	69	61	Menlo Systems	68	59	Stephens
44	28	CompuServe	77	74	Micro Demon	69	62	Survey Software
19	15	Covington	68	58	Micro Help	59	48	Susie Software
76	73	Cryptronics	72	68	Micro Peripheral	26	19	Swindell Judy
9	8	Custom Software	73	69	Pacific Marine	56	44	Swindell Judy
1	3	Dataport	20	16	PG Design	7	6	Target Systems
27	21	DFW	71	66	PG Design	73	71	Tobias
32	24	Diskus Products	28	22	Polar	58	47	Touchbase
46	30	Dr. Preble	73	70	PORTAPRO	CIV	2	Traveling Software
60	51	Elexor	63	54	P.C.S.G.	68	57	Wagoner

The index on this page is provided as a service to readers. The publisher does not assume any liability for errors or omissions.

BARGAIN PROGRAMS

SMALLTALK

- Transfer files to and from your Commodore 64 or your IBM PC using a null modem cable (not included)

\$19.95

LAPWARMER GAMES

- Six game series
- Number Challenge Deflection
- Memory Challenge Repeater
- Biorhythm Who Buys??

\$19.95

DIALTALK

- Transfer files to and from your IBM PC remotely using the telephone lines
- IBM operates unattended after startup
- Access controlled by your secret user ID and password
- Optional event logging with reporting capabilities
- Optional echoing to screen or printer
- Support for either smart or dumb modems (not included)

\$29.95

_____ SMALLTALK Check one
\$19.95 each Check one

_____ DIALTALK Check one
\$29.95 each

_____ LAPWARMER GAME SERIES
\$19.95 each

_____ IBM PC
_____ M100

_____ M100

_____ Commodore 64
_____ PC-8201A

_____ PC-8201A

\$ _____ . _____ Total Purchased

\$ _____ . _____ Ct. Residents add 7½% sales tax

\$3.00 x Number of purchases = \$ _____ . _____ Handling Charges

\$ _____ . _____ Total

NAME _____

ADDRESS _____

PAYMENT METHOD _____ CHECK _____ VISA _____ MASTERCARD

CARD NUMBER _____ EXP DATE _____

SIGNATURE _____ DATE _____

MAIL TO: Key Solutions, Inc.
19 Silvermine Road
New Canaan, CT 06840

MAIL ORDERS ONLY



SURVIVAL TIPS WHEN ENTERING THE COMPUTER MARKETPLACE

Computers and running are two experiences I knew nothing about at age 27 and have improved my life at age 37. I feel no hostility toward computer stuff itself; my despair is with the people who design and sell it. For me the only difference between running a marathon and being a computer user is a marathon takes me 20 miles before I hit the wall, while the computer marketplace takes me 20 feet.

My attitude about the marketplace is not the result of a genetic defect, nor is it a consequence of the adversarial perspective of a lawyer run amuck.

It's hard to stay a liberal once you've been mugged; and the nerds have mugged me; not once, but repeatedly.

On the bright side, I have survived. In the course of that survival I've learned some techniques I'd like to share with you.

TECHNIQUE 1. Don't buy unneeded capability.

Typically, you don't need the fastest or the niftiest hardware or software. The dealer may need to sell it to you, but you don't need to buy it.

Don't worry about outgrowing your capability. Next year they are going to have something newer and cheaper to solve the problem you don't have now, and probably won't have next year anyway.

When working with a dealer, define your market interest by referring to the specific problems you want solved.

"I want my office to have word-processing capability and its accounting functions computerized." If the dealer immediately recommends an account-

ing software package without first asking you to define your accounting needs, then he's selling you software and not solving your problem.

After the dealer tells you what you need, ask him three questions.

First, if I buy, how far am I in time, capability, and expense from solving the problems this purchase is designed to solve?

Second, what capability is being sold to me that isn't necessary for solving the problems I've defined?



Third, what less expensive alternative would address my problem and what are its advantages and disadvantages?

It's okay to make the dealer earn his commission.

Processing speed, RAM and ROM size, graphic capability, 16- or 32-bit microprocessors may represent technological advance, but they don't necessarily mean that the advance delivers a functional benefit to the typical user whose needs are usually better served by the dull edge of technology. The cutting edge may be where the action is, but it is also where the problems and the expense are.

The point is both the user and dealer must recognize the user's sole purpose in entering the lion's den is to solve the user's problem.

I was sold a Victor 9000 with 128K of RAM and the Spellbinder word-processing program. Spellbinder is unique because it comes with its own programming language allowing you to develop and execute programs inside the word-processing environment.

My programs were hindered by insufficient RAM. I called my dealer, who sold me another 128K of RAM for \$300, with exactly the same results.

When I researched the problem, I learned the program created its own RAM memory buffer. My original 128K had exceeded the maximum that could be used by the program.

I run many complex programs on my Victor and have never used a single byte of the additional RAM. Moral of the story: Don't buy it if you're not going to use it.

TECHNIQUE 2. Forget about vendor loyalty.

I am unaware of any vendor in the computer industry entitled to the kind of consumer loyalty making them the first choice for subsequent purchases.

Unlike the automobile industry, where there is a predictable consistency in product values from a manufacturer, the product values of manufacturers in the computer marketplace are chaotic. The user can't afford to assume product values produced in one product are going to find their way into subsequent offerings.

Tandy's Model 100 product line is typical. The Model 100 was bold, innovative, first rate, and reasonably priced. The subsequent Disk-Video Interface was lackluster, flawed, third rate, and overpriced.

TECHNIQUE 3. Look at the vendor, the product, and yourself. Buying the right

continued on page 78

THE **SIDECARTM**

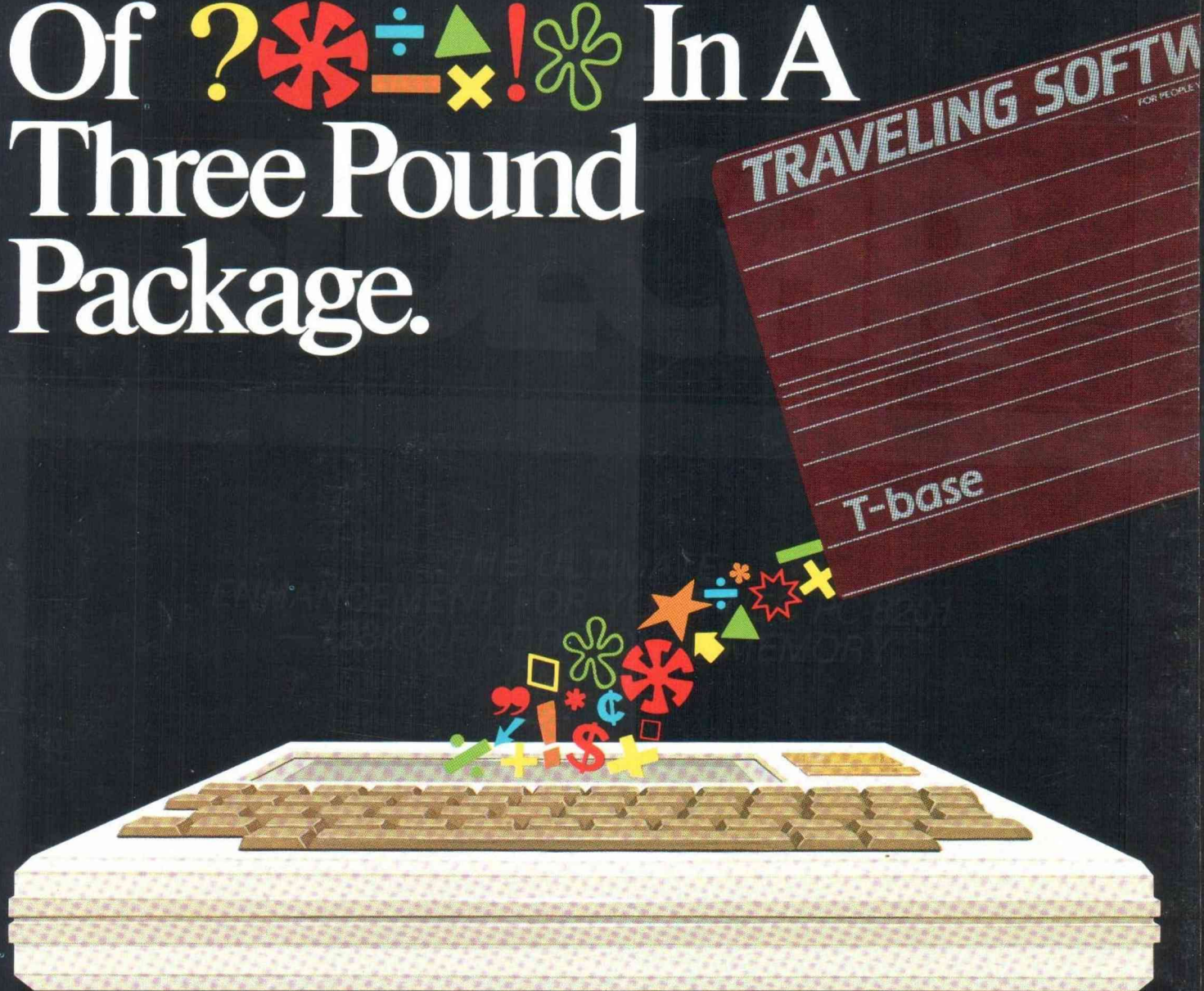
THE ULTIMATE
ENHANCEMENT FOR YOUR NEC PC-8201
—128K OF ADDITIONAL MEMORY
ON-LINE

SEE IT HERE NEXT MONTH

PURPLE COMPUTING

OUTSIDE CALIFORNIA TOLL FREE (800) 732-5012 INSIDE CALIFORNIA (805) 987-4788
2068 VENTURA BLVD., CAMARILLO, CALIFORNIA 93010

How To Put Ten Pounds Of ? * ÷ ▲ ! ✿ In A Three Pound Package.



? * ÷ ! * is the stuff computer programs are made of. And now, Traveling Software has figured out a way to make your three pound lap-size computer do what only the big boys could do before.

Introducing T-base, the most powerful data base management system ever written for your TRS-80 Model 100, NEC PC-8201 or Olivetti M10.

T-base, a sort of place-for-everything-and-everything-in-its-place organizer, that allows you to keep multiple files of information or forms. But unlike simple filer programs, T-base is a relational data base manager. This allows you to borrow information that relates to one file from data contained in another. The net result is you can store more data by eliminating the unnecessary ? * ÷ ! * . And because T-base can link one file to another you have the ability to look at your data in a number of different ways. T-base also allows for the creation of custom printed or LCD display reports.

T-base has spreadsheet capabilities too! T-base allows you to build in your own formulas on your forms with automatic recalculations when any of your variables change.

Simply put, T-base is the most important software ever written for your notebook computer. And because of its condensed format and broad data capabilities, your 3 pound package can do more than even you probably expect. T-base—it beats the ? * ÷ ! * out of the competition.

Other great Traveling Software programs: The Traveling Appointment Manager, Expense Manager, Time Manager, Sales Manager and Project Manager, plus The Traveling Writer.



Call now for the dealer nearest you.

Traveling Software, Inc.
11050 Fifth Avenue N.E.
Seattle, WA 98125

1-800-343-8080

Look for Traveling Software available for other lap-sized computers.